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## State of California THE RESOURCES AGENCY

epartment of Water Resources

BULLETIN No. 115

# YUBA AND BEAR RIVERS BASIN INVESTIGATION

Appendix I: Marysville Reservoir Operation Studies

AUGUST 1965

NOV 1 2 1965

HUGO FISHER

Administrator

The Resources Agency

EDMUND G. BROWN
Governor
State of Colifornia

WILLIAM E. WARNE

Director

Deportment of Water Resources







This monument in Marysville serves as a reminder of the ever present flood danger from the tricky Yuba River. Marysville Reservoir will provide flood protection for Marysville, Yuba City, and lands along the lower Yuba.

# State of California THE RESOURCES AGENCY

### Department of Water Resources

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#### ARTMENT OF WATER RESOURCES

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June 11, 1965

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Honorable Edmund G. Brown, Governor and Members of the Legislature of the State of California

Gentlemen:

I have the honor to transmit Appendix I to Bulletin No. 115, "Yuba and Bear Rivers Basin Investigation". This appendix, "Marysville Reservoir Operation Studies", presents an analysis of the yield potential of Marysville Reservoir for a gross storage capacity of one million acre-feet.

Although not listed in Bulletin No. 115 as a forth-coming appendix, the analysis presented is the culmination of studies initiated during the course of the basinwide investigation. The yield potential as presented herein is a further refinement of the yield figure shown in the main bulletin.

The results of this yield study will permit refinement of economic analyses of Marysville Reservoir as a potential export project to meet the growing demands for water within the State.

Sincerely yours,

Director

## State of California The Resources Agency DEPARTMENT OF WATER RESOURCES

EDMUND G. BROWN, Governor, State of California
HUGO FISHER, Administrator, The Resources Agency
WILLIAM E. WARNE, Director, Department of Water Resources
ALFRED R. GOLZE', Chief Engineer
JOHN M. HALEY, Acting Assistant Chief Engineer

#### DELTA BRANCH

M. Guy Fairchild . . . . . . . . . . . . . . . . . Chief, Planning Section ----The investigation and preparation of this report was conducted under the direction of Robert F. Fingado . . . . . . . . . Senior Engineer, Water Resources by Warren J. Cole . . . . . . . . . . . . Senior Engineer, Water Resources With the cooperation and assistance of the Division of Operations John E. Anderson . . . . . . . . . Water Resources Engineering Associate and the Division of Resources Planning Ralph G. Allison . . . . . . . . . . . Senior Engineer, Water Resources

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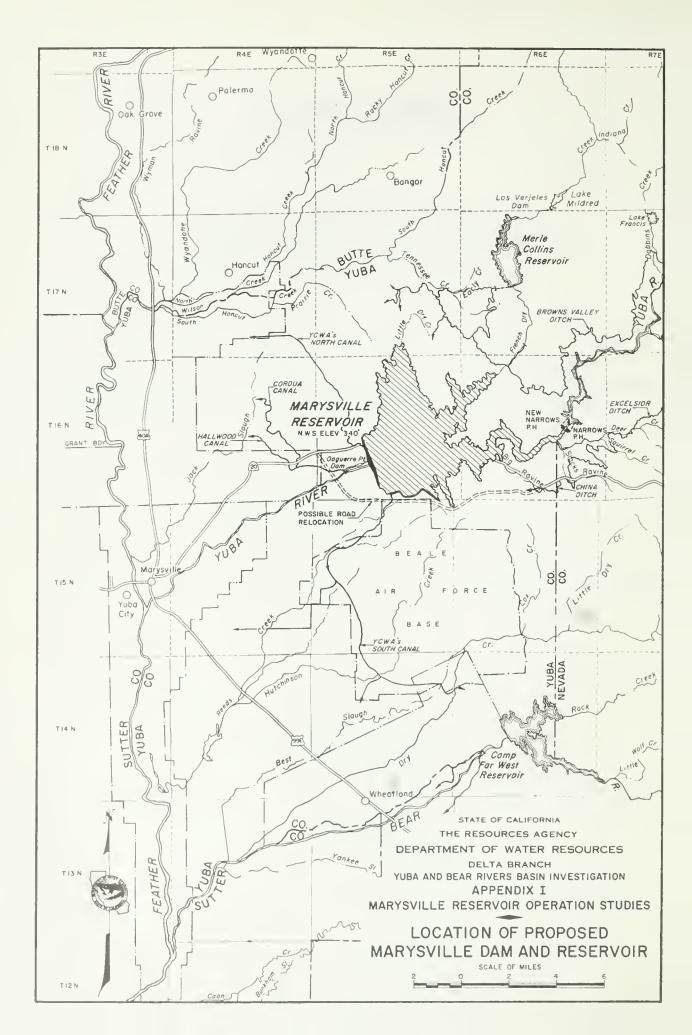
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> ORVILLE ABBOTT Engineer



#### INTRODUCTION

As pointed out in Bulletin No. 115, "Yuba and Bear Rivers
Basin Investigation", the New Bullards Bar-Marysville Project is considered to be the most practical multipurpose plan to maximize the
development and utilization of the water resources of the lower Yuba
River. In Chapter V of this bulletin, it is shown that the New Bullards
Bar Unit will develop new water supplies adequate to meet all future
supplemental consumptive requirements of adjacent valley floor lands
considered to be dependent upon the Yuba River as the most likely source
of future water supplies.

The new yield which could be developed by Marysville Reservoir would therefore be entirely in excess of local needs and would be available for export to areas of deficiency.

Recent studies by the Department show that the State Water Project can supply anticipated demands for irrigation, municipal and industrial water in areas under existing water supply contracts until the mid-1980's.

Additional facilities will be required after the mid-1980's to satisfy further demands for water, which in areas served by the State Water Project alone, are expected to increase by about 1,000,000 acrefeet by 1995. At the same time, surplus flows in the Sacramento-San Joaquin Delta, which make up a portion of the project yield, will diminish as the result of additional development and use of water in the area tributary to the Delta. Therefore, additional future water supplies must be made available not only to meet export demands, but to offset

depletions resulting from increased upstream water use in areas and counties of origin.

The proposed Marysville Reservoir possesses the potential to satisfy a portion of these future demands. The purpose of the studies leading to this appendix was to determine the magnitude of this potential.

The study described in this appendix considers a Marysville

Reservoir of 1,000,000 acre-foot gross storage capacity, operated

separately to sustain the yield of the State Water Facilities. No attempt

was made to integrate the operation of Marysville Reservoir with other

units of the State Water Project or the federal Central Valley Project.

During the Yuba and Bear Rivers Basin Investigation, consideration was given to including hydroelectric power generating facilities with the Marysville Project. However, based upon analysis of a peaking plant operated at 30 percent annual capacity factor and using alternative values for power obtainable with modern fossil fuel steam plants, justification of a power installation below the dam was found to be marginal. Furthermore, the value of power in the not too distant future is expected to be even lower with the advent of large nuclear plants presently planned for construction. For this reason, power facilities were not incorporated in the project outlined in this report.

There are additional considerations which tend to detract from the desirability of a power development in connection with the Marysville Project. These were not evaluated in the previous analysis. First, there would be an increase in the temperature of water released to the river due to warming in an afterbay which would be required for the reregulation of

power releases. The Department of Fish and Game is greatly concerned about the temperature of water which would be released from Marysville Reservoir (see Appendix B of Bulletin No. 115). The depth of water in an afterbay of 50,000 acre-foot capacity constructed immediately below the dam would average about 30 feet when full. With a surface area of about 2,400 acres, considerable warming of the water would result.

Inclusion of power facilities would also decrease the yield from the Marysville Project. There are several reasons for this. First, there would be evaporation from the afterbay. Using the same evaporation rate as that utilized for the main reservoir, project evaporation losses from the afterbay would be about 7,200 acre-feet per year. Second, it would be necessary to release water from the reservoir for power generating purposes during the winter months when adequate flows were available in the Delta to satisfy water requirements in the state service area. This would also decrease the project yield.

In summary, the water release temperatures would be minimized, and the economic return and water yield from the project would be increased if power facilities were not included.

Discussions of project water supply, operational considerations and limitations, and an evaluation of the project yield are presented in the following sections of this appendix.

#### WATER SUPPLY

The water supply available to the Marysville Reservoir will be the natural flow of the Yuba River and French Dry Creek at the damsite, as impaired and modified by upstream developments. Present impairments to the natural flow result from the use of water for irrigation, urban and domestic purposes; export of water from the Yuba River Basin; and evaporation from upstream reservoirs. Impairment to the natural water supply from these causes will increase in the future when projects presently under construction and those proposed for future construction are in operation. In addition to streamflow impairments, the flow regimen is presently modified by operation of existing reservoirs to meet irrigation and hydroelectric power demands, and will be further modified by projects constructed in the future.

The Marysville Reservoir Project was analyzed on the basis of net inflow expected in 1995. Studies leading to the plan for development presented in Bulletin No. 115 indicate that there will be only slight additional impairment to the inflow after that date. Works assumed to be in operation in 1995 are listed below and are shown on Plate 6 of Bulletin No. 115.

North Yuba River - Slate Creek Diversion

New Bullards Bar Reservoir

and powerplants

Browns Valley Ditch

Middle Yuba River - Jackson Meadows Reservoir
Milton Diversion
Hour House Diversion
Log Cabin Diversion

South Yuba River - Bowman and all upstream reservoirs
Bowman-Spaulding Conduit
Texas-Fall Creek System
Spaulding and all upstream
reservoirs
Excelsior Ditch

Yuba River - Englebright Reservoir and powerplants

Deer Creek

- Cascade and Snow Mountain Ditches
Enlarged Scotts Flat Reservoir
and downstream canals
Bitney Corner Reservoir and
downstream canals

French Dry Creek

- Imports per OWID-YCWD 1958

agreement 1/

New York Flat Reservoir (first

stage development)

Virginia Ranch Project

#### Streamflow Impairment and Modification

Impairment and modification to the natural flow at the Marysville damsite was based on the proposed or assumed operating schemes of the above listed works.

The greatest effect on the inflow to Marysville Reservoir will be caused by the proposed Yuba River Development of the Yuba County Water Agency (YCWA). The Agency's New Bullards Bar Reservoir affords full regulation of the North Yuba River when analyzed through the historical critical dry period of 1928 through 1934 and considerably modifies the flow regimen of the stream during normal and wet years. The proposed method of operating the Yuba River Development was formulated by International Engineering Company, Incorporated, (IECO) and is presented in

<sup>1/</sup> See page 200, Bulletin No. 115

a report by that company on the Yuba River Development entitled, "Definitive Reservoir Operation and Power Study", dated March 1963.

Impairments and the net water supply available to this development are discussed in the above report and in a previous report prepared by IECO for the YCWA entitled, "Report on Development of Water Resources of the Yuba River", dated January 1961. Appendix A of the 1961 IECO report describes future streamflow impairments to the YCWA project.

Impairments considered by IECO are listed below by stream.

North Yuba River	_	Exports via Oroville-Wyandotte
		Irrigation District's Slate Creek
		Diversion as estimated by the
		Pacific Gas & Electric Co.
	-	Export of 2,500 acre-feet annually

via Browns Valley Ditch.

Middle Yuba River - The total natural runoff of the Middle Yuba River above Milton Diversion Dam, less stream maintenance flows of 3 secondfeet all year.

South Yuba River

- The total natural runoff of the South Yuba River above Washington gaging station, plus the available flow at the Excelsior Ditch intake up to 7,500 acre-feet per month, April through October of each year.

Deer Creek

- The total natural runoff of Deer Creek above Scotts Flat Dam.

French Dry Creek

- The total natural runoff of
French Dry Creek above Virginia
Ranch Dam, less spills from the
reservoir operation.

The above listed impairments give a conservative estimate of the water supply available to the YCWA project and assure the maintenance

of a dependable power output during the project repayment period should a critical dry period such as 1928-34 recur. The contract for the sale of hydroelectric power from the YCWA project will require that a minimum power output be maintained through the most adverse period of water supply. Marysville Reservoir, on the other hand, will be operated mainly as a flood control and water development project. Therefore, Marysville Reservoir will have a greater operational flexibility than the YCWA project. Accordingly, the following modification to the assumptions of impairments considered by IECO were made.

North Yuba River - None

Middle Yuba River - None

South Yuba River

Inflow to Marysville Reservoir was increased by (1) natural accretions between Washington, Bowman, and Lang Crossing gages as impaired by diversions from Texas and Fall Creeks to Bowman-Spaulding Canal, and (2) spills from Spaulding Reservoir. Spills at Bowman Dam are minor and are not included. Diversions to Excelsior Ditch were assumed to be zero. Consumptive use of water delivered via Excelsior Ditch was estimated to be balanced by return flow to Deer Creek resulting from irrigation in the Deer Creek watershed. (See Deer Creek below.) Unconsumed diversions return to the Yuba River above Marysville damsite.

Yuba River

- Main stem accretions between Narrows Dam and Marysville damsite, not considered by IECO, were included as inflow.

Deer Creek

- Department studies were utilized to determine the contribution to inflow

from Deer Creek. Impairments to the natural flow of Deer Creek at the mouth are based on a DWR operation study of Cascade and Snow Mountain Ditches, Enlarged Scotts Flat Reservoir, proposed Bitney Corner Reservoir, and irrigation diversions below these reservoirs. Return flow to Deer Creek was neglected. (See South Yuba River above.) Accretions below Bitney Corner damsite were computed by area-precipitation ratio to be 12 percent of the natural flow at the Deer Creek gage.

French Dry Creek

Impairments to the natural flow at the mouth is based on a DWR operation study of New York Flat and Virginia Ranch Projects.

The resulting monthly quantities of impaired inflow to Marysville Reservoir under assumed 1995 conditions of upstream development are shown in Table I-1. The natural flows used for this tabulation are those which historically occurred during the period 1921-41. The natural flows which were used in the determination of the quantities shown in columns 2 and 9 of Table I-1 are presented in Tables I-2 through I-8.

#### Reservoir Evaporation

The net evaporation rate from Marysville Reservoir during an average year is estimated to aggregate 3.0 feet. This rate is similar to that currently being utilized by the Department for Oroville Reservoir, and is corrected for the net gains from precipitation due to the change in land use in the reservoir area.

The estimated net rate per month for the combined effects of evaporation and precipitation at Marysville Reservoir is as follows:

Month		Net evaporation rate in feet
January February March April May June July August September October November December		-0.15 0.00 0.00 0.20 0.40 0.65 0.80 0.70 0.50 0.30 -0.10
	TOTAL	3.00

#### OPERATIONAL CONSIDERATIONS AND LIMITATIONS

Factors which will govern the operation of Marysville Reservoir include those relating to prior rights to the waters entering the reservoir, requirements for the preservation of fishlife, the occurrence of dry years, flood control requirements, and the potential demand for water conserved by the project. Each of these factors is discussed below.

#### Local Water Requirements and Water Rights

Marysville Dam would be located downstream from the proposed Yuba County Water Agency's Yuba River Development, construction of which may begin in 1965. Releases to satisfy downstream water rights would be made from the reservoir in the amounts which will be provided from the Agency's project. Also releases in the amount of 5,000 acre-feet per month would be made from Marysville Reservoir to allow for percolation losses in the lower Yuba River channel.

Releases would also be made directly from the reservoir to satisfy the rights of Browns Valley Irrigation District and the Yuba County Water Agency. The Browns Valley Irrigation District diversions would be made in accordance with the proposal of that agency to pump 14,500 acre-feet per year from the Yuba River above Daguerre Point Dam to serve lower elevation lands in the district. Further details on this proposal are presented in Chapter V of Bulletin No. 115. Deliveries to the YCWA would be made in the amounts shown in the IECO report "Definitive Reservoir Operation and Power Study". Releases required to meet local requirements and water rights are shown in Tables I-9 and I-10.

#### Fishery Requirements

Minimum fish releases for the lower Yuba River, to be provided by the Yuba County Water Agency's Project, are specified in a schedule jointly adopted by the Department of Fish and Game and the YCWA.

Minimum fish release requirements are:

400 second-feet October 1 to January 1
245 second-feet January 1 to July 1
70 second-feet July 1 to October 1

During dry years, reduction in releases would be made in accordance with a curtailment schedule included in the agreement.

As the result of more refined studies performed subsequent to the agreement with the YCWA, the Department of Fish and Game has recommended that after construction of Marysville Reservoir, a revised maintenance release schedule be employed. Major increases in flow are recommended for the months of January, February, and July. The revised minimum release schedule for fishery maintenance purposes recommended by the Department of Fish and Game as shown in Appendix B of Bulletin No. 115 is:

400 second-feet October 1 to March 1
250 second-feet March 1 to August 1
70 second-feet August 1 to October 1

It should be recognized that although the additional releases are deemed necessary for the maintenance of more satisfactory minimum flow conditions for the salmon run which would be established by the YCWA Project, these flows can only be considered as an enhancement which would be made possible by the construction of Marysville Reservoir.

Project yield figures shown in this report were determined using the increased fishery maintenance flows recommended by the Department of Fish and Game. No economic analysis was made to determine if these additional releases can be justified.

If augmented fish releases cannot be economically justified, and the schedule approved by the YCWA is used, an increase in project yield of about 18,000 acre-feet per annum can be realized at the level of development expected in 1985. This value would gradually reduce to about 8,000 acre-feet per annum by the year 2035.

#### Dry Years

Criteria established for the YCWA Project modifying local irrigation deliveries and releases to be made for fish during years of extremely low runoff were followed in this study.

Prediction of spring and summer runoff of Sierra Nevada streams can be made with a high degree of accuracy by means of surveys made of the mountain snowpack. After April 1, the forecast of runoff for the balance of the water year is usually within plus or minus five percent of the quantity which actually occurs. Criteria for adjustment of releases during dry years can therefore be related to the April 1 forecast with a reasonable assurance of conformance with estimates.

The agreement between the Department of Fish and Game and the YCWA provides for a reduction in the required releases for fishlife to the lower Yuba River in the event of a critical dry year. A critical dry year, as defined therein, is a water year for which the April 1

forecast of the Department of Water Resources predicts that basin runoff above Smartville will be 50 percent or less of normal. The critical dry year provisions will be determined at the time the April 1 forecast is available and will continue until the April forecast of the following year. The water release curtailment schedule for critical dry years would begin on May 1. The schedule is as follows:

Streamflow forecast of	Reduction in water release
Yuba River at Smartville	for fishlife
in percent of normal	in percent
Above 50	0
46 - 50	15
41 - 45	20
40 or less	30

Reductions which would have taken place under flow conditions experienced during the period 1920-21 through 1940-41 are shown in Table I-11.

Reduction in deliveries for irrigation use established by IECO in connection with their "Definitive Reservoir Operation and Power Study", are as follows:

	Reduction in irrigation deliveries
	with power operation at 34 percent
Streamflow forecast	annual capacity factor
in percent of normal	in percent
Above 85	0
51 - 85	10
50 or less	20

Resulting dry year reductions are reflected in releases made from Narrows Powerplants, shown in Column 1 of Table I-1. Deliveries to the YCWA service area from Marysville Reservoir would not change as the result of the construction of the Marysville Project.

#### Flood Control Requirements

The Corps of Engineers has established the criteria for operation of flood control reservoirs on the Yuba River. These are discussed in Chapter IV of Bulletin No. 115. Monthly flood control storage reservations used in this study are based on the diagrams shown on Figure 1, page 124. The monthly flood control storage reservations were determined on the basis of a single main-stem reservoir and reduced by about 80 percent of the space provided in the New Bullards Bar Reservoir up to the maximum of 170,000 acre-feet. These reservations are shown in Table I-12 of this report.

#### Storable Inflow to Marysville Reservoir

Storage of water in a reservoir can be made only to the extent that there is unappropriated water available as inflow. In the case of streams in the Central Valley of California, appropriation for consumptive use is possible up to the point where the water enters San Francisco Bay. Recent permits issued by the State Water Rights Board on streams with hydraulic continuity with the Sacramento-San Joaquin Delta and with a place of water use outside of the Sacramento River Basin and the Delta, prohibit diversions from streamflow during the months of July through September. In other words, it is the Board's opinion that the entire July through September flow of all streams tributary to the Delta is required to satisfy existing rights in the Sacramento River Basin and the Delta. Therefore, surplus flows are considered to be available only during the balance of the year. Storage of inflow to Marysville Reservoir must accordingly be limited to periods of surplus flow in the Delta.

The occurrence and magnitude of surplus flows in the Delta under future conditions of development were determined by operation studies conducted by the Department of Water Resources. These studies utilize historic conditions of runoff which include the 20 years from 1921 through 1940. This period includes the critical dry period 1928 through 1934 as well as the preceding and following wet periods. These studies were made using projections of future conditions of upstream development anticipated at the midpoint of each decade. Operation of existing  $\frac{1}{2}$  water development facilities over the historical water supply period provides the basis for determining the availability of surplus water in the Delta under the conditions assumed.

The yield of Marysville Reservoir was determined for anticipated conditions of consumptive use in the Central Valley for a period from 1985 to the year 2035. Surplus water in the Delta anticipated in 1995 is shown in Table I-12. Inspection of this table will reveal that, when using historic conditions of water supply, surplus water would occur in only 12 months during the critical operational period for the State Water Project (April 1928 through October 1934 under criteria presently being utilized). The portion of these amounts contributed by the Yuba River would be available for storage in Marysville Reservoir.

Current studies also include the estimated effect of Yuba County Water Agency's Yuba River Development, Placer County Water Agency's Middle Fork American River Project, and Sacramento Municipal Utility District's American River Development.

#### PROJECT YIELD EVALUATION

In the following sections, the methods, criteria, and assumptions used in arriving at the export yield creditable to Marysville Reservoir are discussed. All values of yield are based on providing a firm new water supply to the state service area with no deficiencies in dry years.

#### Export Releases

As explained in the introduction, Marysville Reservoir was analyzed from the standpoint of sustaining the yield of the State Water Project.

Basically, the yield obtainable from the State Water Project will result from (1) the use of surplus flows appropriated at the Delta, and (2) releases from the Oroville facilities. The surplus flows and Oroville releases would be pumped from the Delta for conveyance to the State Water Project service area or to temporary holdover storage in San Luis Reservoir.

Pumping requirements at the Delta Pumping Plant will be high during the winter months when surplus flows are available in the Delta. During these months, the canal to San Luis Reservoir will be operated at maximum capacity during offpeak pumping periods. Consequently, any additional water released to the Delta would waste to the Pacific Ocean, or require more costly pumping during the onpeak periods. Therefore, water releases from Marysville Reservoir were scheduled during the summer months when conduit capacity is available and pumping can be limited to offpeak periods.

In evaluating project yield, releases for export purposes during the critical period were assumed to occur on a usable schedule in

months of no surplus in the Delta. Where additional fish maintenance releases are provided as recommended by the Department of Fish and Game in Appendix B, these flows were incorporated into the release schedule and credited to export supply if occurrence was during nonsurplus periods. An illustrative example of Marysville Reservoir operated in this manner is shown in Table I-12.

#### Operating Assumptions and Criteria

The basic assumption made in evaluating the yield potential of Marysville Reservoir is that the reservoir would be operated in conjunction with surplus flows in the Delta which will remain after operation of the federal Central Valley Project (CVP) and the State Water Project (SWP) to support annual diversion requirements of 13,560,000 acre-feet per annum as defined in the May 16, 1960 agreement  $\frac{1}{2}$ . No attempt was made to operate the reservoir conjunctively with the Oroville facilities although some additional yield could probably be realized under such a scheme.

Additional assumptions and criteria which form the basis for determining the new yield which could be developed by the project are as follows:

#### Basic Assumptions Relating to Marysville Reservoir

1. Inflow to Marysville Reservoir will be as impaired by the level of development anticipated in 1995.

<sup>&</sup>quot;Agreement Between the United States of America and the Department of Water Resources of the State of California for the Coordinated Operation of the Federal Central Valley Project and the State Feather River and Delta Diversion Projects", dated May 16, 1960.

- 2. Releases from Marysville Reservoir to satisfy local requirements will be at least equal to amounts that will be provided by Yuba County Water Agency in operation of their proposed Yuba River Development. (See Tables 1-9 and 1-10.)
- 3. Augmented fish releases will be provided as recommended by the Department of Fish and Game. (See previous section under heading of "Fishery Requirements" for details.)
- 4. The project will be operated for flood control in accordance with U.S.E.D. criteria.
- 5. Inactive storage capacity will be 200,000 acre-feet. (This is a tentative figure pending results of future fishery studies.)

### Criteria Presently Utilized for the Combined Operation of the Federal Central Valley Project and State Water Project

The following criteria are presently being utilized by the

Department in studies of the State Water Project. The criteria assumes the

CVP and the SWP as operating concurrently but separately. It should be

recognized that this method of operation does not produce the maximum benefits

from the two projects. However, until negotiations with the U. S. Bureau of

Reclamation concerning the agreement on operating criteria are completed,

it is necessary to consider the two projects operating in this manner.

The major elements of the operating criteria are:

- 1. The Oroville-Thermalito Facilities will be operated to provide flood control on the Feather River; to provide a new water supply for contractors in the Feather River service area in addition to meeting the existing water rights; to provide additional water for diversion from the Sacramento-San Joaquin Delta by the California Aqueduct; to supply 710 megawatts of dependable electrical power; and for use in connection with recreation and the fish resources of the Feather River.
- 2. The federal Central Valley Project would be operated similar to the method shown in the USBR's water right exhibit 164 entitled, "Central Valley Project Operation Study, Shasta Reservoir Operation, Exhibit 164".

- 3. The Central Valley Project and State Water Project would be operated to support the diversion requirement shown in the May 16, 1960 agreement.
- 4. The State's canal capacity to San Luis will be 10,000 second-feet. Surplus capacity in the Bureau's Delta-Mendota Canal will also be utilized.
- 5. The State's pumping from the Delta would be permitted during periods of onpeak demand for power, but only to the extent that the maximum onpeak pumping rate would not exceed 8,200 second-feet.
- 6. Pumping into San Luis Reservoir will be limited to periods of offpeak demand for power.
- 7. Allowable deficiencies in the agricultural portion of the yield to be provided from the Central Valley Project and State Water Project, when operated under historical water supply conditions, will be incurred in the amount of 50 percent in 1931 and 50 percent in 1934.

A more detailed discussion of this criteria and the method of operation of the CVP and SWP is presented in Bulletin No. 132-64, Chapter VII.

#### Surplus Flows in the Delta

- Surplus flows utilized in the Marysville Reservoir Operation Studies are those resulting from operation of the CVP-SWP under the above criteria and conditions.
- 2. Present surplus flows in the Delta will be reduced on the basis of estimates of future increases in consumptive uses in the watershed tributary to the Delta.

#### Project Yield

Figure I-l shows the new firm yield which could be made available for export from the Sacramento-San Joaquin Delta as a result of constructing Marysville Reservoir. The reduction in annual yield from about

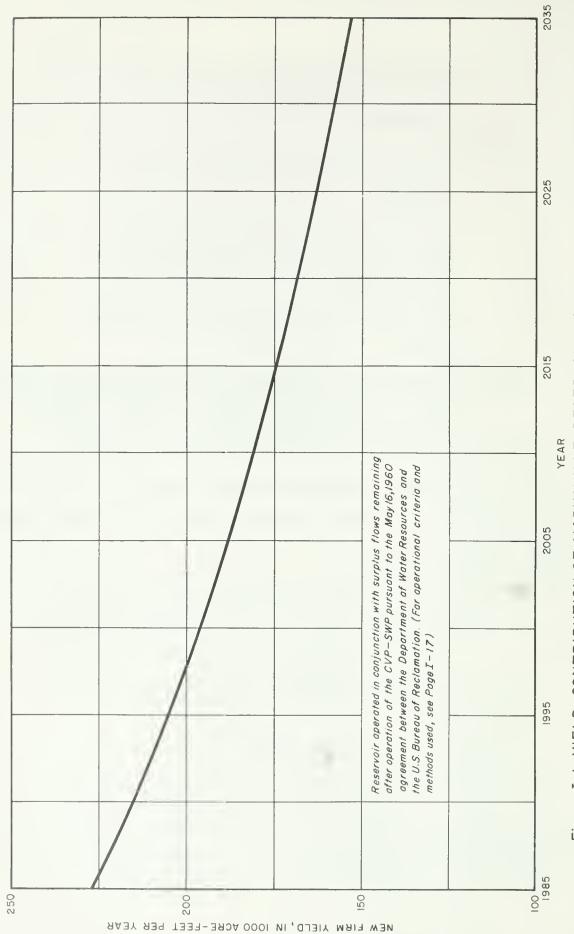
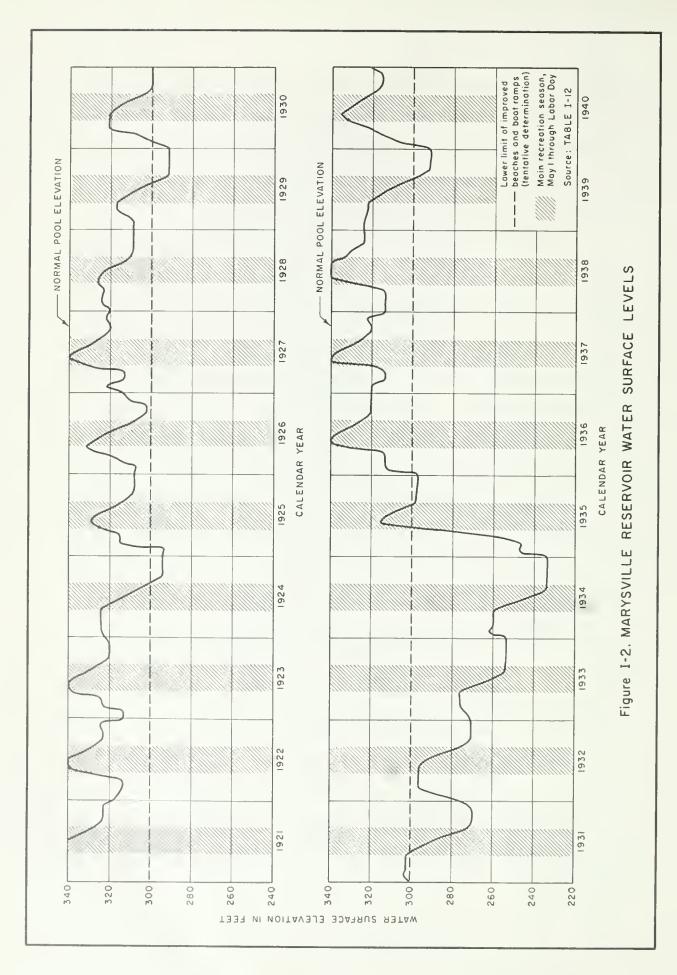


Figure I-1. YIELD CONTRIBUTION OF MARYSVILLE RESERVOIR TO THE STATE WATER PROJECT

225,000 acre-feet per annum in 1985 to 155,000 acre-feet in 2035 results from the decreased quantities of surplus flows in the Delta available to satisfy a portion of the annual SWP demands. The reduction of surplus flows in the Delta is based on Department estimates of increased consumptive use of water in areas and counties or origin.

A monthly operation study of Marysville Reservoir for the period 1921-40 is presented in Table I-12. This study illustrates possible releases from the reservoir operated in conjunction with surplus flows in the Delta and San Luis Reservoir. Water surface levels corresponding to monthly storage amounts from this study are shown on Figure I-2. The period of main recreation use has been superimposed on this figure to illustrate the relatively small fluctuations of the reservoir pool during the recreation season in all but the extremely dry period.

There are many unknowns yet to be resolved before a final yield figure for Marysville Reservoir can be established. Perhaps the largest unknown factor relates to the important salmon fishery in the lower Yuba River. A comprehensive study of the salmon fishery of the lower Yuba River as affected by the Marysville Reservoir Project is planned by the Department of Fish and Game and the U. S. Fish and Wildlife Service. This study will be funded by the constructing agency after project authorization, and will serve to resolve any fishery problems prior to project construction. Included will be a study to predict the temperature of flows released from the reservoir. The desirability of improved spawning areas below the dam will also be evaluated. As noted in Appendix B of Bulletin No. 115, improvement of spawning areas would require larger winter releases from the reservoir.



Minimum pool requirements should also be evaluated. An additional 16,000 acre-feet per annum of firm yield would be realized if dead storage in the reservoir could be reduced to 100,000 acre-feet during critically dry periods.

Future studies by the Department and negotiations with the U. S. Bureau of Reclamation on coordinated operation of the CVP and the SWP will undoubtedly result in modification of the criteria and assumptions utilized as the basis for yield studies made for this report. As these events take place, it will be possible to more firmly establish the amount of export yield creditable to Marysville Reservoir.

Any further studies by the Department should also include consideration of storing additional inflow in Marysville Reservoir in lieu of pumping this water from the Delta into San Luis Reservoir. This type of operation would minimize pumping into San Luis Reservoir and therefore provide a potential additional economic benefit to the project.

#### CONCLUSIONS

Analysis of the yield potential of Marysville Reservoir from the standpoint of sustaining the yield of the State Water Project led to the following conclusions:

- 1. Marysville Reservoir could be operated to provide a firm new water supply for export from the Delta of about 225,000 acre-feet per annum in 1985. (See Figure I-1.) On the same basis, the available yield in the year 2035 would be about 155,000 acre-feet per annum.
- 2. Marysville Reservoir could be operated to store additional inflow which would otherwise be pumped into San Luis Reservoir. This type of operation would minimize the pumping into San Luis Reservoir and therefore provide a potential additional economic benefit.
- 3. Operation of the reservoir to develop maximum water yield for export from the Delta would be compatible with requirements for fishery preservation and a high level of reservoir use for recreation purposes.
- 4. Reduction of the inactive storage capacity of the reservoir from 200,000 to 100,000 acre-feet during a recurrence of the critically dry period would increase the firm export yield of the project by about 16,000 acre-feet annually.

TABLES



#### TABLE I-1 (1 of 7)

## IMPAIRED INFLOW TO MARYSVILLE RESERVOIR UNDER ASSUMED 1995 CONDITIONS OF UPSTREAM DEVELOPMENT

Release   from   harrows   hetween   col.(2)   hetween   col.(3)   hetween   col.(2)   hetween   col.(2)						In 1,000					
Release   Release   From   Narrows   Narrows   Narrows   Power   Pow			Natural					Natural		Yuba	
Release   tions in from   fr								accre-			
Strom   Narrows   Natural Power   Narrows   Natural Power		Release	tions	tions in		Ì		tions	Impaired	l .	
Narrows   Washing - Intercep   Power - box   Law   Each   Spills   Stons   at at a spills   Bowman   Spills   Somman   Spills		from	between	Col.(2)				I .			T 3
Power-			i			Diver-	Spills	l .			
Dants   Crossing   Boman   Spatial fire   Spatial ding   Excelsion   Corner   Spatial ding   S											inflow
Plants			ton, Lang	tea by						Engle-	to
Spalls   S		plants,	Crossing,	Bowman-			Bitney	Reservoi	Creek		
Spills   Bowman   2   3   b   b   b   c   c   c   c   c   c   c		and	and	Spaulding	Spaulding	Excel sior	Corner	and Deer			
Jan   Feb   Jan   Jan			Bowman	Conduit	Dam	Ditch	Reservoir				
1								010010			kese rvo ir
Feb   Feb		±)	gages	5	2)	1	2	gage	2	gage	
Feb   Nar		1	+ (2)	- (3)	+ (4)	+ (5)	+ (6)	+ (7)	+ (8)	+ (9)	= (10)
Feb   Mar	Jan										
Mar   Apr   Nay   Nay											
Apr   Nay   Nay											
Nam α Jul α											-
May   Name   N			1								
Jul   O   156.2   1.4   1.3   3.9   .2   1.7   .1   162.     Aug   106.0   1.2   .8   1.9   .1   1.6   O   110.     Sep   77.9   1.0   .7   2.2   .1   1.3   0   81.     Oct   51.2   1.0   .4   3.3   .2   .9   .1   56.     Iov   30.6   1.4   .4   0   .3   .7   .3   32.     Dec   48.2   4.4   .6   0   1.3   3.2   .7   57.     Total   (470.1)   (10.4)   (4.2)   (11.3)   (2.2)   (9.4)   (1.2)   (500.     Jan   60.2   4.2   .6   0   1.4   4.5   32.5   5.9   184.     Feb   123.5   14.2   1.5   0   4.9   4.5   32.5   5.9   184.     Far   212.3   13.2   1.9   0   20.7   3.9   41.2   5.7   295.     Avr   189.0   21.0   2.7   7.5   13.3   3.1   31.7   2.7   265.     Say   N   153.8   34.7   15.5   122.5   7.5   12.5   3.4   11.0   2.0   691.     Jun   O   197.0   3.1   2.7   7.5   3.3   3.1   31.8   .1   207.     Rotal   14.6   1.9   .8   3.5   .1   1.6   .1   121.     Sep   77.8   1.2   5   2.2   .1   1.3   0   82.     Oct   51.2   1.3   6   4.3   2.2   .9   1.1   5.7     Feb   104.1   6.1   1.0   0   2.3   1.1   8.5   1.2   122.     Jun   O   132.7   45.8   224.8   40.0   51.4   22.1   137.2   23.8   2691.    Jan   139.6   8.3   1.6   0   3.1   1.7   4.5   2.3   157.     Feb   104.1   6.1   1.0   0   2.3   1.1   8.5   1.2   122.     Jun   O   164.4   2.6   4.2   7.1   7.5   5.6   1.5   5.6   1.1   200.     Aug   Hard   134.3   2.16   4.2   7.1   7.5   5.6   1.5   5.6   1.1   200.     Aug   134.3   2.16   4.2   7.1   7.5   5.6   1.5   5.6   1.1   200.     Aug   134.3   2.16   4.2   7.1   7.5   5.6   1.5   5.6   1.1   200.     Aug   154.3   2.16   4.2   7.1   7.5   5.6   1.5   5.6   1.1   200.     Aug   154.3   2.16   4.2   7.1   7.5   5.6   1.5   5.6   1.1   200.     Aug   154.3   2.16   4.2   7.1   7.5   5.6   1.5   5.6   1.1   200.     Aug   154.3   2.16   4.2   7.1   7.5   5.6   1.5   5.6   1.1   200.     Aug   154.3   2.16   4.2   7.1   7.5   5.6   1.5   5.6   1.1   200.     Aug   154.4   2.1   1.8   3.7   2.1   1.6   0   1.5   0   1.5   0   1.5   0   0   1.5   0   0   1.5   0   0   1.5   0   0   1.5   0   0   1.	May										
Aug     106.0   1.2   8   1.9   .1   1.6   0   110.0   177.9   1.0   .7   2.2   .1   1.3   0   81.0   0ct   51.2   1.0   .4   3.3   3.2   .9   .1   56.0   150.0   1	Jun (			l							
Aug     106.0   1.2   8   1.9   .1   1.6   0   110.0   177.9   1.0   .7   2.2   .1   1.3   0   81.0   0ct   51.2   1.0   .4   3.3   3.2   .9   .1   56.0   150.0   1		156.2	1.4	1.3		3.9		.2	1.7	-1	162.2
Sep				8					16		110 0
Oct         51.2         1.0         .4         3.3         .2         .9         .1         56.           Nov         30.6         1.4         .4         0         .3         .7         .3         32.           Dec         48.2         4.4         .6         0         1.3         3.2         .7         57.           Total         (470.1)         (10.4)         (4.2)         (11.3)         (2.2)         (9.4)         (1.2)         (500.           Jan         60.2         4.2         .6         0         1.4         4.3         2.4         71.           reb         123.5         14.2         1.5         0         4.9         4.5         32.5         5.9         184.           reb         123.3         13.2         1.9         0         20.7         3.9         41.2         5.7         295.           Aor         189.0         21.0         2.7         7.5         13.3         3.1         31.7         2.7         295.           Aor         189.0         21.0         2.7         7.5         13.3         3.1         11.0         2.0         691.           Jun         488.0											27 0
Nov   30.6   1.4   .4   0   .3   .7   .3   32.     Dec				•							
Dec									.9_		56.3
Dec		30.6	1.4			0		.3	.7	.3	32.9
Total   (470.1)   (10.4)   (4.2)   (11.3)   (2.2)   (9.4)   (1.2)   (500.1)	Dec	48.2	24.24	.6		0			3.2		57.2
Jan   60.2   4.2   .6   0   1.4   1.3   2.4   71.     Feb   123.5   14.2   1.5   0   4.9   4.5   32.5   5.9   184.     Far   212.3   13.2   1.9   0   20.7   3.9   41.2   5.7   295.     Apr   189.0   21.0   2.7   7.5   13.3   3.1   31.7   2.7   265.     Fay   189.0   21.0   2.7   7.5   12.5   3.4   11.0   2.0   691.     Jun   0   428.0   19.3   15.5   102.3   7.5   12.5   3.4   11.0   2.0   691.     Jun   0   197.0   3.1   2.7   7.5   3   3   1.8   .1   207.     Aug   114.6   1.9   .8   3.5   .1   1.6   .1   121.     Sep   77.8   1.2   .5   2.2   .1   1.3   0   82.     Oct   51.2   1.3   .6   4.3   .2   .9   .1   57.     Fov   35.2   3.0   .9   0   .6   1.0   .4   39.     Dec   102.4   15.6   2.6   0   3.4   7.5   3.9   130.     Total   2105.0   132.7   45.8   224.8   40.0   51.4   22.1   137.2   23.8   2691.     Jan   139.6   8.3   1.6   0   3.1   1.7   4.5   2.3   157.     Feb   104.1   6.1   1.0   0   2.3   1.1   8.5   1.2   122.     Far   134.3   7.4   1.6   0   4.9   1.0   9.5   1.2   126.     Apr   154.3   21.6   4.2   7.1   7.5   5.6   1.5   5.6   1.1   200.     May   120.2   6.1   5.6   4.8   54.6   7.5   0.4   1.5   .2   257.     Jun   0   164.4   2.1   1.8   3.7   .2   1.7   0   170.     Aug   110.8   1.5   7   2.6   .1   1.6   0   1.3   .1   3.4   .1   3.4   .1   .1   3.4   .1   .1   .1   .1   .1   .1   .1	Total	(470 1)	(10 )1)	(), 2)		(11.3)					
Feb   123.5	10021	(410.1)	(10.4)	(4.2)		(11.0)	ļ <u>.</u>	(2.2)	(9.4)	(1.2)	()00.4)
Feb   123.5			1 1 -						,		
Mar											71.9
Sar   212.3   13.2   1.9   0   20.7   3.9   41.2   5.7   295.     Apr   189.0   21.0   2.7   7.5   13.3   3.1   31.7   2.7   265.     Jun   189.0   21.0   2.7   7.5   12.5   3.4   11.0   2.0   691.     Jun   188.0   19.3   15.5   102.3   7.5   12.5   3.4   11.0   2.0   691.     Jul   0   197.0   3.1   2.7   7.5   3.3   1.8   .1   207.     Aug   114.6   1.9   8   3.5   .1   1.6   .1   121.     Sep   77.8   1.2   .5   2.2   .1   1.3   0   82.     Oct   51.2   1.3   .6   4.3   .2   .9   .1   57.     Nov   35.2   3.0   .9   0   .6   1.0   .4   39.     Dec   102.4   15.6   2.6   0   3.4   7.5   3.9   130.     Total   2105.0   132.7   45.8   224.8   40.0   51.4   22.1   137.2   23.8   2691.      Jan   139.6   8.3   1.6   0   3.1   1.7   4.5   2.3   157.     Feb   104.1   6.1   1.0   0   2.3   1.1   8.5   1.2   122.     Far   134.3   7.4   1.6   0   4.9   1.0   9.5   1.2   156.     Apr   0   154.3   21.6   4.2   7.1   7.5   5.6   1.5   5.6   1.1   200.     Yay   185.2   16.8   8.8   54.6   7.5   0.4   1.5   2.2   257.     Jun   0   164.4   2.1   1.8   3.7   .2   1.7   0   170.     Aug   10.8   1.5   .7   2.6   .1   1.6   0   115.     Sep   77.5   1.4   .7   4.3   .1   1.3   .1   84.     Dec   37.7   1.9   .5   0   .4   .6   .3   100.     Dec   37.7   1.9   .5   0   .4   .6   .3   100.     Dec   37.7   1.9   .5   0   .4   .4   .2   36.     Dec   37.7   1.9   .5   0   .4   .6   .3   100.     Total   20.7   2.6   .			14.2	1.5		0	4.9	4.5	32.5	5.9	184.0
Apr	Mar	212.3	13.2	1.9		0	20.7	3.9	41.2	5.7	295.1
Say   Si3.8   34.7   15.5   122.5   7.5   12.5   3.4   11.0   2.0   691.     Jul   O	Apr					7.5	13.3				
Jun         Q         428.0         19.3         15.5         102.3         7.5         1.1         2.4         .5         545.           Jul         O         197.0         3.1         2.7         7.5         .3         1.8         .1         207.           Aug. rt         114.6         1.9         .8         3.5         .1         1.6         .1         121.           Sep         77.8         1.2         .5         2.2         .1         1.3         0         82.           Oct         51.2         1.3         .6         4.3         .2         .9         .1         57.           Nov         35.2         3.0         .9         0         .6         1.0         .4         39.           Dec         102.4         15.6         2.6         0         3.1         1.7         14.5         2.3         157.           Total         2105.0         132.7         145.8         224.8         40.0         51.4         22.1         137.2         23.8         2691.           Jan         139.6         8.3         1.6         0         3.1         1.7         14.5         2.3         157.					122 5			3 /1		2 0	601 0
Jul on 197.0         3.1         2.7         7.5         .3         1.8         .1         207.           Aug rd 114.6         1.9         .8         3.5         .1         1.6         .1         121.           Sep 77.8         1.2         .5         2.2         .1         1.3         0         82.           Oct 51.2         1.3         .6         4.3         .2         .9         .1         57.           Nov 35.2         3.0         .9         0         .6         1.0         .4         39.           Dec 102.4         15.6         2.6         0         3.4         7.5         3.9         130.           Total 2105.0         132.7         45.8         224.8         40.0         51.4         22.1         137.2         23.8         2691.           Jan 139.6         8.3         1.6         0         3.1         1.7         4.5         2.3         157.           Feb 104.1         6.1         1.0         0         2.3         1.1         8.5         1.2         122.           Ear 134.3         7.4         1.6         0         4.9         1.0         9.5         1.2         126.		1:08 0					16.				51:5 6
Aug rt 114.6 1.9 .8 3.5 .1 1.6 .1 121.  Sep 77.8 1.2 .5 2.2 .1 1.3 0 82.  Oct 51.2 1.3 .6 4.3 2.9 .1 57.  Nov 35.2 3.0 .9 0 .6 1.0 .4 39.  Dec 102.4 15.6 2.6 0 3.4 7.5 3.9 130.  Total 2105.0 132.7 45.8 224.8 40.0 51.4 22.1 137.2 23.8 2691.   Jan 139.6 8.3 1.6 0 3.1 1.7 4.5 2.3 157.  Feb 104.1 6.1 1.0 0 2.3 1.1 8.5 1.2 122.  Mar 134.3 7.4 1.6 0 4.9 1.0 9.5 1.2 156.  Apr m 154.3 21.6 4.2 7.1 7.5 5.6 1.5 5.6 1.1 200.  May 0 185.2 16.8 8.8 54.6 7.5 0.4 1.5 .2 257.  Jun 0 120.2 6.1 5.6 4.8 7.5 2.6 1.1 1.3 134.  Jul 0 164.4 2.1 1.8 3.7 2.1 1.6 0 1.3 1.4 1.5 2.5 1.2 122.  Aug rt 110.8 1.5 7 2.6 1.1 1.0 0.4 1.5 2.5 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0					102.3				2.4		
Sep         77.8         1.2         .5         2.2         .1         1.3         0         82.           Oct         51.2         1.3         .6         4.3         .2         .9         .1         57.           Nov         35.2         3.0         .9         0         .6         1.0         .4         39.           Dec         102.4         15.6         2.6         0         3.4         7.5         3.9         130.           Total         2105.0         132.7         45.8         224.8         40.0         51.4         22.1         137.2         23.8         2691.           Jan         139.6         8.3         1.6         0         3.1         1.7         4.5         2.3         157.           Feb         104.1         6.1         1.0         0         2.3         1.1         8.5         1.2         122.           Mar         134.3         7.4         1.6         0         4.9         1.0         9.5         1.2         156.           Apr         6         1.54         2.7         7.5         5.6         1.5         5.6         1.1         200.           May				2.(							
Oct         51.2         1.3         .6         4.3         .2         .9         .1         57.           Nov         35.2         3.0         .9         0         .6         1.0         .4         39.           Dec         102.4         15.6         2.6         0         3.4         7.5         3.9         130.           Total         2105.0         132.7         45.8         224.8         40.0         51.4         22.1         137.2         23.8         2691.           Jan         139.6         8.3         1.6         0         3.1         1.7         4.5         2.3         157.           Feb         104.1         6.1         1.0         0         2.3         1.1         8.5         1.2         122.           Mar         134.3         7.4         1.6         0         4.9         1.0         9.5         1.2         156.           Apr         1.54.3         21.6         4.2         7.1         7.5         5.6         1.5         5.6         1.1         200.           May         0         185.2         16.8         8.8         54.6         7.5         0.4         1.5						3.5		.1	1.6	.1	121.0
Oct         51.2         1.3         .6         4.3         .2         .9         .1         57.           Nov         35.2         3.0         .9         0         .6         1.0         .4         39.           Dec         102.4         15.6         2.6         0         3.4         7.5         3.9         130.           Total         2105.0         132.7         45.8         224.8         40.0         51.4         22.1         137.2         23.8         2691.           Jan         139.6         8.3         1.6         0         3.1         1.7         4.5         2.3         157.           Feb         104.1         6.1         1.0         0         2.3         1.1         8.5         1.2         122.           Mar         134.3         7.4         1.6         0         4.9         1.0         9.5         1.2         156.           Apr         1.54.3         21.6         4.2         7.1         7.5         5.6         1.5         5.6         1.1         200.           May         0         185.2         16.8         8.8         54.6         7.5         0.4         1.5	Sep	77.8	1.2	5		2.2		.1	1.3	0	82.1
Nov         35.2         3.0         .9         0         .6         1.0         .4         39.           Dec         102.4         15.6         2.6         0         3.4         7.5         3.9         130.           Total         2105.0         132.7         45.8         224.8         40.0         51.4         22.1         137.2         23.8         2691.           Jan         139.6         8.3         1.6         0         3.1         1.7         4.5         2.3         157.           Feb         104.1         6.1         1.0         0         2.3         1.1         8.5         1.2         122.           Mar         134.3         7.4         1.6         0         4.9         1.0         9.5         1.2         126.           Apr         154.3         21.6         4.2         7.1         7.5         5.6         1.5         5.6         1.1         200.           May         185.2         16.8         8.8         54.6         7.5         0.4         1.5         .2         257.           Jun         120.2         6.1         5.6         4.8         7.5         .2         1.6	Oct									. 7	
Dec 102.4 15.6 2.6 0 3.4 7.5 3.9 130.  Total 2105.0 132.7 45.8 224.8 40.0 51.4 22.1 137.2 23.8 2691.  Jan 139.6 8.3 1.6 0 3.1 1.7 4.5 2.3 157.  Feb 104.1 6.1 1.0 0 2.3 1.1 8.5 1.2 122.  Mar 134.3 7.4 1.6 0 4.9 1.0 9.5 1.2 156.  Apr 154.3 21.6 4.2 7.1 7.5 5.6 1.5 5.6 1.1 200.  May 185.2 16.8 8.8 54.6 7.5 0.4 1.5 .2 257.  Jun 120.2 6.1 5.6 4.8 7.5 .2 1.6 1.1 134.  Jul 0 164.4 2.1 1.8 3.7 .2 1.7 0 170.  Aug 110.8 1.5 .7 2.6 1.1 1.6 0 115.  Sep 77.5 1.4 .7 4.3 1.6 0 1.5 .3 1.0 1.5 .2 267.  Nov 34.3 1.5 .5 0 .4 .4 .4 .2 36.  Dec 37.7 1.9 .5 0 .4 .6 .3 140.				0							
Total 2105.0 132.7 45.8 224.8 40.0 51.4 22.1 137.2 23.8 2691.  Jan 139.6 8.3 1.6 0 3.1 1.7 4.5 2.3 157.  Feb 104.1 6.1 1.0 0 2.3 1.1 8.5 1.2 122.  Mar 134.3 7.4 1.6 0 4.9 1.0 9.5 1.2 156.  Apr M 154.3 21.6 4.2 7.1 7.5 5.6 1.5 5.6 1.1 200.  May 185.2 16.8 8.8 54.6 7.5 0.4 1.5 .2 257.  Jun 0 120.2 6.1 5.6 4.8 7.5 .2 1.6 1.1 134.  Jul 0 164.4 2.1 1.8 3.7 .2 1.6 0 125.  Sep 77.5 1.4 .7 2.6 1.1 1.6 0 115.  Sep 77.5 1.4 .7 2.6 1.1 1.3 1.3 1.1 84.  Oct 58.3 1.6 1.1 7.5 0 .3 1.0 1. 67.  Nov 34.3 1.5 .5 0 .4 .4 .6 .3 40.				26		0					33.3
Jan 139.6 8.3 1.6 0 3.1 1.7 4.5 2.3 157.  Feb 104.1 6.1 1.0 0 2.3 1.1 8.5 1.2 122.  Mar 134.3 7.4 1.6 0 4.9 1.0 9.5 1.2 156.  Apr 6 154.3 21.6 4.2 7.1 7.5 5.6 1.5 5.6 1.1 200.  May 185.2 16.8 8.8 54.6 7.5 0.4 1.5 .2 257.  Jun 120.2 6.1 5.6 4.8 7.5 .2 1.6 .1 134.  Jul 10 164.4 2.1 1.8 3.7 .2 1.7 0 170.  Aug 110.8 1.5 .7 2.6 .1 1.6 0 115.  Sep 77.5 1.4 .7 4.3 .1 1.6 0 115.  Nov 34.3 1.5 .5 0 .4 .6 .3 40.  Dec 37.7 1.9 .5 0 .4 .6 .3 40.					001 0		·				
Feb         104.1         6.1         1.0         0         2.3         1.1         8.5         1.2         122.           Mar         134.3         7.4         1.6         0         4.9         1.0         9.5         1.2         156.           Apr         154.3         21.6         4.2         7.1         7.5         5.6         1.5         5.6         1.1         200.           May         185.2         16.8         8.8         54.6         7.5         0.4         1.5         ,2         257.           Jun         120.2         6.1         5.6         4.8         7.5         0.4         1.5         ,2         257.           Jun         120.2         6.1         5.6         4.8         7.5         0.4         1.5         ,2         257.           Jun         120.2         6.1         5.6         4.8         7.5         0.4         1.5         ,2         257.           Jun         120.2         6.1         5.6         4.8         7.5         0.2         1.6         0.1         134.           Jul         0         164.4         2.1         1.8         3.7         2.2         1.7<	Total	2105.0	132.7	45.8	224.8	40.0	51.4	22.1	137.2	23.8	2691.2
Feb         104.1         6.1         1.0         0         2.3         1.1         8.5         1.2         122.           Mar         134.3         7.4         1.6         0         4.9         1.0         9.5         1.2         156.           Apr         154.3         21.6         4.2         7.1         7.5         5.6         1.5         5.6         1.1         200.           May         185.2         16.8         8.8         54.6         7.5         0.4         1.5         ,2         257.           Jun         120.2         6.1         5.6         4.8         7.5         0.4         1.5         ,2         257.           Jun         120.2         6.1         5.6         4.8         7.5         0.4         1.5         ,2         257.           Jun         120.2         6.1         5.6         4.8         7.5         0.4         1.5         ,2         257.           Jun         120.2         6.1         5.6         4.8         7.5         0.2         1.6         0.1         134.           Jul         0         164.4         2.1         1.8         3.7         2.2         1.7<											
Feb         104.1         6.1         1.0         0         2.3         1.1         8.5         1.2         122.           Mar         134.3         7.4         1.6         0         4.9         1.0         9.5         1.2         156.           Apr         154.3         21.6         4.2         7.1         7.5         5.6         1.5         5.6         1.1         200.           May         185.2         16.8         8.8         54.6         7.5         0.4         1.5         ,2         257.           Jun         120.2         6.1         5.6         4.8         7.5         0.4         1.5         ,2         257.           Jun         120.2         6.1         5.6         4.8         7.5         0.4         1.5         ,2         257.           Jun         120.2         6.1         5.6         4.8         7.5         0.4         1.5         ,2         257.           Jun         120.2         6.1         5.6         4.8         7.5         0.2         1.6         0.1         134.           Jul         0         164.4         2.1         1.8         3.7         2.2         1.7<	Jan	139.6	8.3	1.6		0	3.1	1.7	1,5	2.3	157.9
Mar 134.3 7.4 1.6 0 4.9 1.0 9.5 1.2 156.  Apr m 154.3 21.6 4.2 7.1 7.5 5.6 1.5 5.6 1.1 200.  May 185.2 16.8 8.8 54.6 7.5 0.4 1.5 .2 257.  Jun 120.2 6.1 5.6 4.8 7.5 .2 1.6 .1 134.  Jul 10 164.4 2.1 1.8 3.7 .2 1.7 0 170.  Aug 110.8 1.5 .7 2.6 .1 1.6 0 115.  Sep 77.5 1.4 .7 4.3 .1 1.3 .1 84.  Oct 58.3 1.6 1.1 7.5 .3 1.0 .1 67.  Nov 34.3 1.5 .5 0 .4 .4 .2 36.  Dec 37.7 1.9 .5 0 .4 .6 .3 40.	Feb	104.1	6.1						8.5		122.2
Apr m       154.3       21.6       4.2       7.1       7.5       5.6       1.5       5.6       1.1       200.         May       185.2       16.8       8.8       54.6       7.5       0.4       1.5       .2       257.         Jun       120.2       6.1       5.6       4.8       7.5       .2       1.6       .1       134.6         Jul       164.4       2.1       1.8       3.7       .2       1.7       0       170.         Aug       110.8       1.5       .7       2.6       .1       1.6       0       115.         Sep       77.5       1.4       .7       4.3       .1       1.3       .1       84.6         Oct       58.3       1.6       1.1       7.5       .3       1.0       .1       67.5         Nov       34.3       1.5       .5       0       .4       .4       .2       36.         Dec       37.7       1.9       .5       0       .4       .6       .3       140.		13/13							0.5		156.7
May     185.2     16.8     8.8     54.6     7.5     0.4     1.5     .2     257.       Jun     120.2     6.1     5.6     4.8     7.5     .2     1.6     .1     134.       Jul     164.4     2.1     1.8     3.7     .2     1.7     0     170.       Aug     110.8     1.5     .7     2.6     .1     1.6     0     115.       Sep     77.5     1.4     .7     4.3     .1     1.3     .1     84.       Oct     58.3     1.6     1.1     7.5     .3     1.0     .1     67.       Nov     34.3     1.5     .5     0     .4     .4     .2     36.       Dec     37.7     1.9     .5     0     .4     .6     .3     140.		751.3			77 7						
Jun     120.2     6.1     5.6     4.8     7.5     .2     1.6     .1     13½.       Jul     0     164.½     2.1     1.8     3.7     .2     1.7     0     170.       Aug     110.8     1.5     .7     2.6     .1     1.6     0     115.       Sep     77.5     1.4     .7     ½.3     .1     1.3     .1     1.3     .1     8½.       Oct     58.3     1.6     1.1     7.5     .3     1.0     .1     67.       Nov     34.3     1.5     .5     0     .½     .½     .½     .2     36.       Dec     37.7     1.9     .5     0     .½     .6     .3     ½0.	Apr m						5,0				200.1
Jul © 164.4     2.1     1.8     3.7     .2     1.7     0     170.       Aug H 110.8     1.5     .7     2.6     .1     1.6     0     115.       Sep 77.5     1.4     .7     4.3     .1     1.3     .1     84.       Oct 58.3     1.6     1.1     7.5     .3     1.0     .1     67.       Nov 34.3     1.5     .5     0     .4     .4     .2     36.       Dec 37.7     1.9     .5     0     .4     .6     .3     100.	May										
Jul of 164.4     2.1     1.8     3.7     .2     1.7     0     170.       Aug rd 110.8     1.5     .7     2.6     .1     1.6     0     115.       Sep 77.5     1.4     .7     4.3     .1     1.3     .1     84.       Oct 58.3     1.6     1.1     7.5     .3     1.0     .1     67.       Nov 34.3     1.5     .5     0     .4     .4     .2     36.       Dec 37.7     1.9     .5     0     .4     .6     .3     10.			6.1		4.8	7.5			1.6	.1	134.9
Aug rd       110.8       1.5       .7       2.6       .1       1.6       0       115.         Sep       77.5       1.4       .7       4.3       .1       1.3       .1       84.         Oct       58.3       1.6       1.1       7.5       .3       1.0       .1       67.         Nov       34.3       1.5       .5       0       .4       .4       .2       36.         Dec       37.7       1.9       .5       0       .4       .6       .3       10.	Jul O	164.4	2.1	1.8		3.7		.2		0	170.3
Sep     77.5     1.4     .7     4.3     .1     1.3     .1     84.       Oct     58.3     1.6     1.1     7.5     .3     1.0     .1     67.       Nov     34.3     1.5     .5     0     .4     .4     .2     36.       Dec     37.7     1.9     .5     0     .4     .6     .3     10.	Aug H	110.8									115.9
Oct         58.3         1.6         1.1         7.5         .3         1.0         .1         67.1           Nov         34.3         1.5         .5         0         .½         .½         .½         .2         36.           Dec         37.7         1.9         .5         0         .½         .6         .3         ½											811 0
Nov 34.3 1.5 .5 0 .1 .4 .2 36.  Dec 37.7 1.9 .5 0 .1 .6 .3 110.		58 2									67.7
Dec 37.7 1.9 .5 0 .4 .6 .3 40.											01.1
				• 2						.2	36.3
Total   1320.7   76.3   28.1   66.5   40.6   15.9   7.4   37.8   6.8   1543.	Dec								.6		
	Total	1320.7	76.3	28.1	66.5	110.6	15.9	7.4	37.8	6.8	1543.9

#### TABLE I-1 (2 of 7)

## IMPAIRED INFLOW TO MARYSVILLE RESERVOIR UNDER ASSUMED 1995 CONDITIONS OF UPSTREAM DEVELOPMENT

Release   Corect   Release   Relea											
Release   Rele			Natural.					Natural		Yuba	
Pelease   tions   tions   tions   larrows   kashing   therespondents,   the plants,			1	Accre-							
		Deless		I .					Tunnainad		
Power   Consider   Corner											
		Narrows	Washing-	intercep-	1		Spills	Bitney	French	below	inflow
		Power-	ton Lang	ted by	Spills	sions	at	Corner	Dry	Engle-	to
Sep	1										
Spin   Somman   Conduit   Dam   Ditch   Reservoir   Creek   mouth   Dear   Cr.   Reservoir   Gage   Spin					)						
1											
Fan			1	Conduit							Reservoir
Fan		1/	gages	2/	3/	4/	5/	gage	6/	gage	
Fan		7	+ (2)	-3		+ (5)		+ 7			= (10)
Peb   65,8   7,5   1,8   0   1,2   1,5   .9   75,1     Max   37,8   2.6   1.0   0   0   .2   h   2   ho. 2     Apr   45,h   6.7   2.2   7,h   .h   1.1   .2   59.0     May   0   0,8   2.8   1.8   1.5   .1   1.1   0   0   0     May   0   0,6   0.5   1.0   0   1.5   0   0     Jul   0   115,4   0.4   .3   1.2   0   1.6   0   118.3     Aug   0   0.0   0.8   .5   1.8   0   0   0   1.5   0     Oct   68,6   1.2   .h   3.3   1.2   0   0   1.6   0     Oct   68,6   1.2   .h   3.3   0   .5   .8   .3   43.4     Dec   30.0   5.4   1.6   0   .9   2.0   1.0     Jul   0   14,2   5,6   1.4   0   1.2   3.0   1.6   77.7     Total   796.3   3h.1   12.5   0   18.7   0   3.9   11.6   3.1     Asy   0   68,5   1.0   3.4   0   1.1   2.6   1.3     Aug   0   68,5   1.0   3.4   0   1.1   2.6   1.3     Aug   0   68,5   1.0   3.4   0   1.1   2.6   1.3     Aug   0   68,6   1.2   .h   3.7   7.5   0.3   1.2   2.5   8      Jun   0   11,5   1.7   1.7   1.7      Jun   0   11,5   1.7   1.7   1.7      Jun   0   11,5   1.7   1.7   1.7      Aug   0   1.7   1.7   1.7   1.7      Jun   0   1.7   1.7   1.7      Jun   0   1.7   1.7   1.7      Jun   0   1.7   1.7      Jun   0   1.7   1.7      Jun   0					•		0				
Mar   37.8   2.6   1.0   0   .2   .h   .2   h0.2     Apr   4   b.4   6.7   2.2   7.4   .h   1.1   .2   59.0     May   80.8   2.8   1.8   1.5   .1   1.1   0   80.5     Jun   0   115.4   0.4   .3   1.2   0   1.6   0   118.3     Aug   96.0   0.8   .5   1.8   0   .7   0   98.8     Sep   74.3   0.8   .5   2.0   0   1.1   0   76.7     Total   796.3   3h.1   12.5   0   18.7   0   3.9   11.6   3.1   855.2      Jan   64.2   5.6   1.h   0   11.2   3.0   1.6   74.2     Seb   199.5   29.4   5.8   0   5.0   11.1   5.h   244.6     Mar   68.5   10.0   3.h   0   1.2   3.0   1.6   74.2     Seb   199.5   29.4   5.8   0   5.0   11.1   5.h   244.6     Mar   68.5   10.0   3.h   0   1.2   3.0   1.6   74.2     Seb   199.5   29.1   1.3   0   5.1   1.2   1.2     Jun   0   11.3   3.3   3.0   1.0   5.1   2.2   1.6   1.3     Mar   68.5   10.0   3.h   0   1.1   2.6   1.3   80.1     Mar   68.5   10.0   3.h   0   1.1   2.6   1.3   80.1     Mar   68.5   10.0   3.h   0   1.1   2.6   1.3   80.1     Mar   68.5   10.0   3.h   0   1.1   2.6   1.3   80.1     Mar   0   11.3   3.3   3.0   1.0   5.1   2.2   1.6   1.1     Mar   0   11.5   1.0   9   2.1   1.1   1.7   0   121.5     Aug   10.5   1.3   h   2.h   1.1   1.7   0   121.5     Mar   10.5   1.3   h   2.h   1.1   1.7   0   121.5     Mar   10.5   1.3   h   2.h   1.1   1.7   0   121.5     Mar   10.5   1.3   h   2.h   1.1   1.7   0   121.5     Mar   10.5   1.3   h   2.h   2.h   1.1   1.7   0   121.5     Mar   10.5   1.3   h   2.h   1.1   1.7   0   121.5     Mar   10.5   1.3   h   2.h   2.h   1.1   1.7   0   121.5     Mar   10.5   1.3   1.0   3.5   2.2   9   0   57.6     Mar   10.5   1.3   1.0   3.5   2.2   9   0   57.6     Mar   10.6   1.8   2.5   1.8   30.8   0.3   10.2   28.9   9.9   124h.h      Jan   10.6   1.8   2.2   1.1   1.1   1.5   0   1.7   0      Jun   0   1.7   1.1   1.4   0   1.6   0   1.6   0   1.7      Jun   0   1.7   1.1   1.4   0   1.3   1.3   1.1   1.3   0      Mar   1.7   1.1   1.4   0   1.6   0   0   0   0      Mar   1.7   1.1   1.5   0   1.7   0      Mar   1.7   1.1   1.5   0											
Mar   37.8   2.6   1.0   0   .2   .4   .2   40.2   40.2     May   4   80.8   2.8   1.8   1.5   .1   1.1   .2   59.0     May   7   80.8   2.8   1.8   1.5   .1   1.1   .0   84.5     Jun   0   115.4   0.4   .3   1.2   0   0   1.4   0   97.0     Aug   7   96.0   0.8   .5   1.8   0   .7   0   98.8     Sep   74.3   0.8   .5   2.0   0   1.0   0   76.7     Oct   68.6   1.2   .4   3.8   .2   .2   1   73.7     Total   796.3   34.1   12.5   0   18.7   0   3.9   11.6   3.1   855.2      Jan   64.2   5.6   1.4   0   0   1.2   3.0   1.6   74.2     Feb   199.5   29.4   5.8   0   5.0   11.1   5.4   244.6     Mar   68.5   10.0   3.4   0   1.1   2.6   1.3   80.1     Mar   68.5   10.0   3.4   0   1.1   2.6   1.3   80.1     Mar   68.5   10.0   3.4   0   1.1   2.6   1.3   80.1     Mar   68.5   10.0   3.4   0   1.1   2.6   1.3   80.1     Mar   68.5   10.0   3.4   0   1.1   2.6   1.3   80.1     Mar   68.5   10.0   3.4   0   1.1   2.6   1.3   80.1     Mar   68.5   10.0   3.4   0   1.1   2.6   1.3   80.1     Mar   68.5   10.0   3.4   0   1.1   2.6   1.3   80.1     Mar   68.5   10.0   3.4   0   1.1   2.6   1.3   80.1     Mar   68.5   10.0   3.4   0   1.1   2.6   1.3   80.1     Mar   68.5   10.0   3.4   0   1.1   2.6   1.3   80.1     Mar   68.6   1.3   3.7   7.5   0.3   1.2   2.5   8   114.8     Mar   68.5   10.0   3.4   0   1.1   2.6   1.3   80.1     Mar   68.5   10.0   3.4   0   1.1   2.6   1.3   80.1     Mar   68.5   10.0   3.4   0   1.1   3.3   3.3   3.0   1.0   5.1   1.1   2.6   1.3   80.1     Mar   68.5   10.0   3.4   0   1.1   3.3   3.3   3.0   1.0   5.1   1.1   2.6   1.3   80.1     Mar   68.5   10.0   3.4   0   1.1   3.4   3.3   3.5   3.2   3.5   3.1   3.3   3.5   3.2   3.5   3.1   3.3   3.5   3.2   3.5   3.3   3.5   3.2   3.5   3.3   3.5   3.2   3.5   3.3   3.5   3.2   3.3   3.3   3.5   3.2   3.3	Feb	65.8							1.5	9	75.1
Apr   45, 4	Mar	37.8	2.6	1.0		0		.2	. 1;		2.04
May   Sol.   S	Apr	45.4	6.7	2.2		7.4					59.0
Jun   O   94.5   O.6   O.5   D.0   O   D.1   O   O   D.1   O   O   D.1   O   O   D.1											81, 5
Jul											
Aug	0 441			• >							97.0
Sep   74.3   0.8   .5   2.0   0   .1   0   76.7				• 3							118.3
Oct         68.6         1.2         .4         3.8         .2         .2         .1         73.7           INV         39.9         3.2         1.3         0         .5         .8         .3         43.4           Pec         30.0         5.4         1.6         0         .9         2.0         1.0         37.7           Total         796.3         34.1         12.5         0         18.7         0         3.9         11.6         3.1         855.2           Jan         64.2         5.6         1.4         0         1.2         3.0         1.6         74.2           Feb         199.5         29.4         5.8         0         5.0         11.1         5.4         244.6           Mar         68.5         10.0         3.4         0         1.1         2.6         1.3         80.1           Apr         86.8         19.4         3.7         7.5         0.3         1.2         2.5         .8         114.8           May         111.3         3.3         3.0         1.0         5.1         2.2         1.6         .1         119.6           Jun         111.3         3.3									.7		
Oct         68.6         1.2         .4         3.8         .2         .2         .1         73.7           INV         39.9         3.2         1.3         0         .5         .8         .3         43.4           Pec         30.0         5.4         1.6         0         .9         2.0         1.0         37.7           Total         796.3         34.1         12.5         0         18.7         0         3.9         11.6         3.1         855.2           Jan         64.2         5.6         1.4         0         1.2         3.0         1.6         74.2           Feb         199.5         29.4         5.8         0         5.0         11.1         5.4         244.6           Mar         68.5         10.0         3.4         0         1.1         2.6         1.3         80.1           Apr         86.8         19.4         3.7         7.5         0.3         1.2         2.5         .8         114.8           May         111.3         3.3         3.0         1.0         5.1         2.2         1.6         .1         119.6           Jun         111.3         3.3	Sep	74.3	0.8	•5		2.0		0		0	76.7
Nov   39.9   3.2   1.3   0   .5   8   .3   43.4     Dec   30.0   5.4   1.6   0   .9   2.0   1.0   37.7     Total   796.3   3½.1   12.5   0   18.7   0   3.9   11.6   3.1   855.2     Jen   64.2   5.6   1.4   0   1.2   3.0   1.6   7½.2     Feb   199.5   29.4   5.8   0   5.0   11.1   5.4   2½.4     Mar   68.5   10.0   3.4   0   1.1   2.6   1.3   80.1     Apr   68.5   10.0   3.4   0   1.1   2.6   1.3   80.1     Apr   68.8   19.4   3.7   7.5   0.3   1.2   2.5   8   114.8     May   111.3   3.3   3.0   1.0   5.1   2.2   1.6   1.1   19.6     Jul   O   117.5   1.0   .9   2.1   .1   1.7   0   121.5     Aug   105.9   1.3   .4   2.4   .1   1.6   0   110.9     Sep   77.9   1.2   .4   2.7   .1   1.3   0   82.8     Oct   52.7   1.3   1.0   3.5   .2   .9   0   57.6     Total   1086.4   88.6   29.5   18.8   30.8   0.3   10.2   28.9   9.9   1244.4      Jun   O   117.8   .6   .2   1.3   .7   .7   58.8     Feb   138.4   16.0   2.1   0   3.0   6.2   3.1   164.6     Mar   149.2   9.0   4.6   0   9   2.0   1.0   157.5     Apr   O   101.5   21.1   5.2   13.1   7.5   1.3   2.4   8   232.5     May   O   10.7   34.4   0   1.2   3.0   3.0   6.2   3.1   164.6     Mar   149.2   9.0   4.6   0   9   2.0   1.0   157.5     Apr   O   17.8   .6   .2   1.4   0   1.6   0   121.2     Jun   O   117.8   .6   .2   1.4   0   1.6   0   121.2     Jun   O   117.8   .6   .2   1.4   0   1.5   0   109.7     Sep   78.0   .8   .2   1.8   0   1.2   0   81.6     Oct   52.1   1.3   3.3   3.1   1.2   3.8     Jun   O   1.7   8.6   .2   1.4   0   1.5   0   109.7     Sep   78.0   .8   .2   1.5   0   0   1.5   0   109.7     Sep   78.0   .8   .2   1.8   0   1.2   0   81.6     Oct   52.1   1.3   3   3.1   1.5   107.4     Dec   53.6   6.3   3.0   0   6.6   1.6   77   59.8								.2			
Pec   30.0   5.4   1.6   0   .9   2.0   1.0   37.7     Total   796.3   34.1   12.5   0   18.7   0   3.9   11.6   3.1   855.2     Jen   64.2   5.6   1.4   0   1.2   3.0   1.6   74.2     Feb   199.5   29.4   5.8   0   5.0   11.1   5.4   244.6     Mar   68.5   10.0   3.4   0   1.1   2.6   1.3   80.1     Apr   68.8   19.4   3.7   7.5   0.3   1.2   2.5   .8   114.8     May   12.4   11.7   6.5   17.8   7.5   .4   1.4   .2   161.9     Jun   0   117.5   1.0   0   2.1   .1   1.7   0   121.5     Aus   105.9   1.3   .4   2.4   .1   1.6   0   110.9     Sep   77.9   1.2   .4   2.7   .1   1.3   0   82.8     Oct   52.7   1.3   1.0   3.5   .2   .9   0   57.6     Nov   34.4   1.9   1.1   0   .3   .5   .2   36.2     Dec   38.3   2.5   1.9   0   .3   .5   .2   36.2     Total   1086.4   88.6   29.5   18.8   30.8   0.3   10.2   28.9   9.9   1244.4     Jun   140.2   9.0   4.6   0   9   2.0   1.0   157.5     Apr   191.5   21.1   5.2   13.1   7.5   1.3   2.4   8   8   23.5     May   12.3   1.2   .8   2.7   .1   1.5   0   1.7     Jun   112.3   1.2   .8   2.7   .1   1.5   0   1.7     Jun   112.3   1.2   .8   2.7   .1   1.5   0   1.7     Jun   112.3   1.2   .8   2.7   .1   1.5   0   1.7     Jun   112.3   1.2   .8   2.7   .1   1.5   0   1.7     Jun   112.3   1.2   .8   2.7   .1   1.5   0   1.7     Jun   112.3   1.2   .8   2.7   .1   1.5   0   1.7     Jun   112.3   1.2   .8   2.7   .1   1.5   0   1.7     Jun   112.3   1.2   .8   2.7   .1   1.5   0   1.7     Sep   78.0   8   .2   1.5   0   1.5   0   109.7     Sep   78.0   8   .2   1.5   0   1.5   0   109.7     Sep   78.0   8   .2   1.8   0   1.2   0   81.6     Oct   52.1   1.3   3   3   3   3   3   3   3   3   3											
Total   796.3   34.1   12.5   0   18.7   0   3.9   11.6   3.1   855.2			7.6		-						27 7
Jen   64.2   5.6   1.4   0   1.2   3.0   1.6   74.2     Feb   199.5   29.4   5.8   0   5.0   11.1   5.4   244.6     Mar   68.5   10.0   3.4   0   1.1   2.6   1.3   48.0     May   129.4   11.7   6.5   17.8   7.5   0.3   1.2   2.5   8   114.9     May   111.3   3.3   3.0   1.0   5.1   2.1   1.6   1.1   19.6     Jul   0   117.5   1.0   9   2.1   1.1   1.7   0   121.5     Aug   105.9   1.3   .4   2.4   1.1   1.6   0   110.9     Sep   77.9   1.2   .4   2.7   .1   1.3   0   82.8     Oct   52.7   1.3   1.0   3.5   2.2   9   0   57.6     Nov   34.4   1.9   1.1   0   3.5   2.2   36.2     Dec   38.3   2.5   1.9   0   3.3   7   3.3   40.2     Total   1086.4   88.6   29.5   18.8   30.8   0.3   10.2   28.9   9.9   1244.1      Jan   53.4   4.1   1.4   0   6   1.1   7   58.8     Feb   138.4   16.0   2.1   0   3.0   6.2   3.1   164.6     Mar   149.2   9.0   4.6   0   9.9   2.0   1.0   157.5     May   0   112.3   1.2   3.8   2.7   1.1   1.5   0   117.0     Jul   0   117.8   6   2.1   5.2   13.1   7.5   1.3   2.4   8   232.5     May   0   112.3   1.2   3.8   2.7   1.1   1.5   0   117.0     Jul   0   117.8   6   2.1   1.4   0   1.6   0   0.6   0.7     Sep   78.0   8   2   1.4   0   1.5   0   121.2     Aug   106.1   8   2   1.4   0   0   1.5   0   121.2     Aug   106.1   8   2   1.4   0   0   1.5   0   0.7     Sep   78.0   8   2   1.8   0   1.2   0   81.6     Oct   52.1   1.3   3   3   3   1   1.5   107.1     Dec   53.6   6.3   3.0   0   6   1.6   7   59.8      Sep   78.0   8   2   1.8   0   1.2   0   81.6     Oct   52.1   1.3   3   3   3   3   3   3   1   1.5   107.1     Dec   53.6   6.3   3.0   0   6   1.6   7   59.8     Sep   78.0   8   2   1.8   0   1.5   0   10.7     Dec   53.6   6.3   3.0   0   6   2.0   3.1   1.5   107.1     Dec   53.6   6.3   3.0   0   6   2.0   3.1   1.5   107.1     Dec   53.6   6.3   3.0   0   6   2.0   3.1   1.5   107.1     Dec   53.6   6.3   3.0   0   6   2.0   3.1   1.5   107.1     Dec   53.6   6.3   3.0   0   6   2.0   3.1   1.5   107.1     Dec   53.6   6.3   3.0   0   0   6   1.6   7   59.8											
Jen	Total	796.3	34.1	12.5	0	18.7	0	3.9	11.6	3.1	855.2
Feb   199.5   29.4   5.8   0   5.0   11.1   5.4   244.6		1	1		·	l	!	1			
Feb   199.5   29.4   5.8   0   5.0   11.1   5.4   244.6					1						
Mar   68.5   10.0   3.4   0   1.1   2.6   1.3   80.1     Apr   G   86.8   19.4   3.7   7.5   0.3   1.2   2.5   .8   114.8     May   129.4   11.7   6.5   17.8   7.5   .4   1.4   .2   161.9     Jun   0   111.3   3.3   3.0   1.0   5.1   .2   1.6   .1   119.6     Jul   0   117.5   1.0   .9   2.1   .1   1.7   0   121.5     Aug   105.9   1.3   .4   2.4   .1   1.6   0   110.9     Sep   77.9   1.2   .4   2.7   .1   1.3   0   82.8     Oct   52.7   1.3   1.0   3.5   .2   .9   0   57.6     Tov   34.4   1.9   1.1   0   .3   .5   .2   36.2     Dec   38.3   2.5   1.9   0   .3   .7   .3   40.2     Total   1086.4   88.6   29.5   18.8   30.8   0.3   10.2   28.9   9.9   1244.4      Jan   53.4   4.1   1.4   0   3.0   6.2   3.1   164.6     Mar   149.2   9.0   4.6   0   .9   2.0   1.0   157.5     Apr   0   191.5   21.1   5.2   13.1   7.5   1.3   2.4   8   232.5     May   0   95.0   6.0   2.8   18.1   5.4   3   1.3   1.1   1.2     Aug   106.1   8   .2   1.4   0   1.6   0   121.2     Aug   106.1   .8   .2   1.4   0   1.6   0   121.2     Aug   106.1   .8   .2   1.5   0   0   0   0   0     Dec   53.6   6.3   3.0   0   6.6   1.6   7   59.8     Dec   53.6   6.3   3.0   0   6.6   1.6   7   59.8     Dec   53.6   6.3   3.0   0   6.6   1.6   7   59.8     Dec   53.6   6.3   3.0   0   6.6   1.6   7   59.8     Dec   53.6   6.3   3.0   0   6.6   1.6   7   59.8     Dec   53.6   6.3   3.0   0   0   6.6   1.6   7   59.8     Dec   53.6   6.3   3.0   0   0   6.6   1.6   7   59.8     Dec   53.6   6.3   3.0   0   0   6.6   1.6   7   59.8     Dec   53.6   6.3   3.0   0   0   6.6   1.6   7   59.8     Dec   53.6   6.3   3.0   0   0   6.6   1.6   7   59.8     Dec   53.6   6.3   3.0   0   0   6.6   1.6   7   59.8     Dec   53.6   6.3   3.0   0   0   6.6   1.6   7   59.8     Dec   53.6   6.3   3.0   0   0   6.6   1.6   7   59.8     Dec   53.6   6.3   3.0   0   0   0   0   0   0   0   0     Dec   53.6   6.3   3.0   0   0   0   0   0   0   0   0     Dec   53.6   6.3   3.0   0   0   0   0   0   0   0   0     Dec   53.6   6.3   3.0   0   0   0   0   0   0   0						0			3.0		74.2
Mar   68.5   10.0   3.4   0   1.1   2.6   1.3   80.1     Apr   G   86.8   19.4   3.7   7.5   0.3   1.2   2.5   .8   114.8     May   129.4   11.7   6.5   17.8   7.5   .4   1.4   .2   161.9     Jun   0   111.3   3.3   3.0   1.0   5.1   .2   1.6   .1   119.6     Jul   0   117.5   1.0   .9   2.1   .1   1.7   0   121.5     Aug   105.9   1.3   .4   2.4   .1   1.6   0   110.9     Sep   77.9   1.2   .4   2.7   .1   1.3   0   82.8     Oct   52.7   1.3   1.0   3.5   .2   .9   0   57.6     Tov   34.4   1.9   1.1   0   .3   .5   .2   36.2     Dec   38.3   2.5   1.9   0   .3   .7   .3   40.2     Total   1086.4   88.6   29.5   18.8   30.8   0.3   10.2   28.9   9.9   1244.4      Jan   53.4   4.1   1.4   0   3.0   6.2   3.1   164.6     Mar   149.2   9.0   4.6   0   .9   2.0   1.0   157.5     Apr   0   191.5   21.1   5.2   13.1   7.5   1.3   2.4   8   232.5     May   0   95.0   6.0   2.8   18.1   5.4   3   1.3   1.1   1.2     Aug   106.1   8   .2   1.4   0   1.6   0   121.2     Aug   106.1   .8   .2   1.4   0   1.6   0   121.2     Aug   106.1   .8   .2   1.5   0   0   0   0   0     Dec   53.6   6.3   3.0   0   6.6   1.6   7   59.8     Dec   53.6   6.3   3.0   0   6.6   1.6   7   59.8     Dec   53.6   6.3   3.0   0   6.6   1.6   7   59.8     Dec   53.6   6.3   3.0   0   6.6   1.6   7   59.8     Dec   53.6   6.3   3.0   0   6.6   1.6   7   59.8     Dec   53.6   6.3   3.0   0   0   6.6   1.6   7   59.8     Dec   53.6   6.3   3.0   0   0   6.6   1.6   7   59.8     Dec   53.6   6.3   3.0   0   0   6.6   1.6   7   59.8     Dec   53.6   6.3   3.0   0   0   6.6   1.6   7   59.8     Dec   53.6   6.3   3.0   0   0   6.6   1.6   7   59.8     Dec   53.6   6.3   3.0   0   0   6.6   1.6   7   59.8     Dec   53.6   6.3   3.0   0   0   6.6   1.6   7   59.8     Dec   53.6   6.3   3.0   0   0   6.6   1.6   7   59.8     Dec   53.6   6.3   3.0   0   0   0   0   0   0   0   0     Dec   53.6   6.3   3.0   0   0   0   0   0   0   0   0     Dec   53.6   6.3   3.0   0   0   0   0   0   0   0   0     Dec   53.6   6.3   3.0   0   0   0   0   0   0   0	Feb	199.5	29.4	5.8		0		5.0	11.1	5.4	244.6
Apr	Mar	68.5		3.4		0			26		
New   129.4   11.7   6.5   17.8   7.5   .4   1.4   .2   161.9	Ann						0.3				111 8
Jun On Jul On	Lion LO			6.5	17.8	7.5					167.0
Jul o         117.5         1.0         .9         2.1         .1         1.7         0         121.5           Aug rd 105.9         1.3         .4         2.4         .1         1.6         0         110.9           Sep 77.9         1.2         .4         2.7         .1         1.3         0         82.8           Oct 52.7         1.3         1.0         3.5         .2         .9         0         57.6           Bov 34.4         1.9         1.1         0         .3         .5         .2         36.2           Dec 38.3         2.5         1.9         0         .3         .7         .3         40.2           Total 1086.4         88.6         29.5         18.8         30.8         0.3         10.2         28.9         9.9         1244.4.4           Jun 1086.4         88.6         29.5         18.8         30.8         0.3         10.2         28.9         9.9         1244.4.4           Jun 1086.4         11.0         0         .6         1.14         .7         58.8           Feb 138.4         16.0         2.1         0         3.0         6.2         3.1         164.6           Far											
Aug - 105.9 1.3 .4 2.4 .1 1.6 0 110.9 Sep 77.9 1.2 .4 2.7 .1 1.3 0 82.8 Oct 52.7 1.3 1.0 3.5 .2 .9 0 57.6 Nov 34.4 1.9 1.1 0 3.5 .2 36.2 Dec 38.3 2.5 1.9 0 .3 .7 .3 40.2 Total 1086.4 88.6 29.5 18.8 30.8 0.3 10.2 28.9 9.9 1244.4    Jan 53.4 4.1 1.4 0 .6 2.1 0 3.0 6.2 3.1 164.6 Nar 149.2 9.0 4.6 0 .9 2.0 1.0 157.5 Apr 0 191.5 21.1 5.2 13.1 7.5 1.3 2.4 8 232.5 Nay 0 95.0 6.0 2.8 18.1 5.4 .3 1.3 .1 123.4 Jun 112.3 1.2 .8 2.7 .1 1.5 0 117.0 Jul 0 117.8 .6 .2 1.4 0 1.5 0 1.5 0 121.2 Nag 106.1 .8 .2 1.5 0 1.5 0 121.2 Nag 106.1 .8 .2 1.5 0 1.5 0 109.7 Sep 78.0 .8 .2 1.8 0 1.2 0 81.6 Oct 52.1 1.3 .3 .3 3.1 1.5 1.0 0 1.5 0 0 1.2 0 87.2 Nov 87.1 16.9 3.2 0 2.0 0 2.0 3.1 1.5 107.4 Dec 53.6 6.3 3.0 0 0 6.3 1.5 1.5 107.4 Dec 53.6 6.3 3.0 0 0 6.5 1.6 .7 59.8	0 000				1.0						
Sep         77.9         1.2         .4         2.7         .1         1.3         0         82.8           Oct         52.7         1.3         1.0         3.5         .2         .9         0         57.6           Nov         34.4         1.9         1.1         0         .3         .5         .2         36.2           Dec         38.3         2.5         1.9         0         .3         .7         .3         40.2           Total         1086.4         88.6         29.5         18.8         30.8         0.3         10.2         28.9         9.9         1244.4.4           Jan         53.4         4.1         1.4         0         .6         1.4         .7         58.8           Feb         138.4         16.0         2.1         0         3.0         6.2         3.1         164.6           Mar         149.2         9.0         4.6         0         .9         2.0         1.0         157.5           Apr         191.5         21.1         5.2         13.1         7.5         1.3         2.4         .8         232.5           May         95.0         6.0         2.8		117.5		.9		2.1		.1	1.7	0	
Sep         77.9         1.2         .4         2.7         .1         1.3         0         82.8           Oct         52.7         1.3         1.0         3.5         .2         .9         0         57.6           Nov         34.4         1.9         1.1         0         .3         .5         .2         36.2           Dec         38.3         2.5         1.9         0         .3         .7         .3         40.2           Total         1086.4         88.6         29.5         18.8         30.8         0.3         10.2         28.9         9.9         1244.4.4           Jan         53.4         4.1         1.4         0         .6         1.4         .7         58.8           Feb         138.4         16.0         2.1         0         3.0         6.2         3.1         164.6           Mar         149.2         9.0         4.6         0         .9         2.0         1.0         157.5           Apr         191.5         21.1         5.2         13.1         7.5         1.3         2.4         .8         232.5           May         95.0         6.0         2.8	Aug -	105.9	1.3	. 4		2.4		.1	1.6	0	110.9
Oct         52.7         1.3         1.0         3.5         .2         .9         0         57.6           Nov         34.4         1.9         1.1         0         .3         .5         .2         36.2           Dec         38.3         2.5         1.9         0         .3         .7         .3         40.2           Total         1086.4         88.6         29.5         18.8         30.8         0.3         10.2         28.9         9.9         1244.4         10.2	Sep	77.9	1.2	. 24				.1	1.3	0	82.8
Nov         34,4         1.9         1.1         0         .3         .5         .2         36.2           Dec         38.3         2.5         1.9         0         .3         .7         .3         40.2           Total         1086.4         88.6         29.5         18.8         30.8         0.3         10.2         28.9         9.9         1244.4           Jan         53.4         4.1         1.4         0         .6         1.4         .7         58.8           Feb         138.4         16.0         2.1         0         3.0         6.2         3.1         164.6           Mar         149.2         9.0         4.6         0         .9         2.0         1.0         157.5           Apr         191.5         21.1         5.2         13.1         7.5         1.3         2.4         .8         232.5           May         95.0         6.0         2.8         18.1         5.4         .3         1.3         .1         123.4           Jun         112.3         1.2         .8         2.7         .1         1.5         0         117.0           Jul         0         1.6											
Dec 38.3 2.5 1.9 0 .3 .7 .3 40.2  Total 1086.4 88.6 29.5 18.8 30.8 0.3 10.2 28.9 9.9 1244.4  Jan 53.4 4.1 1.4 0 .6 1.4 .7 58.8  Feb 138.4 16.0 2.1 0 3.0 6.2 3.1 164.6  Mar 149.2 9.0 4.6 0 .9 2.0 1.0 157.5  Apr 191.5 21.1 5.2 13.1 7.5 1.3 2.4 8 232.5  May 95.0 6.0 2.8 18.1 5.4 .3 1.3 .1 123.4  Jun 112.3 1.2 .8 2.7 .1 1.5 0 117.0  Jul 0 117.8 .6 .2 1.4 0 1.6 0 1.6 0 121.2  Aug 1 106.1 .8 .2 1.9 0 1.5 0 109.7  Sep 78.0 .8 .2 1.8 0 1.2 0 81.6  Oct 52.1 1.3 .3 3.1 1.9 0 57.2  Nov 87.1 16.9 3.2 0 2.0 3.1 1.5 107.4  Dec 53.6 6.3 3.0 0 0 .6 1.6 7 59.8											
Total 1086.4 88.6 29.5 18.8 30.8 0.3 10.2 28.9 9.9 1244.4 5  Jan 53.4 4.1 1.4 0 .6 1.4 .7 58.8 56 138.4 16.0 2.1 0 3.0 6.2 3.1 164.6 6  Mar 149.2 9.0 4.6 0 .9 2.0 1.0 157.5 6  Apr 191.5 21.1 5.2 13.1 7.5 1.3 2.4 .8 232.5 6  May 95.0 6.0 2.8 18.1 5.4 .3 1.3 .1 123.4 6  Jun 112.3 1.2 .8 2.7 .1 1.5 0 117.0 117.0 117.8 .6 .2 1.4 0 1.6 0 121.2 6  Aug 106.1 .8 .2 1.5 0 1.5 0 109.7 56 78.0 .8 .2 1.8 0 1.2 0 81.6 0 0 1.2 0 81.6 0 0 1.2 0 81.6 0 0 1.2 0 81.6 0 0 1.2 0 81.6 0 0 1.2 0 81.6 0 0 1.2 0 81.6 0 0 1.2 0 81.6 0 0 1.2 0 81.6 0 0 1.2 0 81.6 0 0 1.2 0 81.6 0 0 1.2 0 81.6 0 1.2 0 81.6 0 1.6 0 1.							-				
Jan       53.4       4.1       1.4       0       .6       1.4       .7       58.8         Feb       138.4       16.0       2.1       0       3.0       6.2       3.1       164.6         Mar       149.2       9.0       4.6       0       .9       2.0       1.0       157.5         Apr       191.5       21.1       5.2       13.1       7.5       1.3       2.4       .8       232.5         May       95.0       6.0       2.8       18.1       5.4       .3       1.3       .1       123.4         Jun       112.3       1.2       .8       2.7       .1       1.5       0       117.0         Jul       0       117.8       .6       .2       1.4       0       1.6       0       121.2         Aug       106.1       .8       .2       1.5       0       1.5       0       109.7         Sep       78.0       .8       .2       1.8       0       1.2       0       81.6         Oct       52.1       1.3       .3       3.1       .1       .9       0       57.2         Nov       87.1       16.9       3.2				1.9	1	0		1		-3	
Jan       53.4       4.1       1.4       0       .6       1.4       .7       58.8         Feb       138.4       16.0       2.1       0       3.0       6.2       3.1       164.6         Mar       149.2       9.0       4.6       0       .9       2.0       1.0       157.5         Apr       0       191.5       21.1       5.2       13.1       7.5       1.3       2.4       .8       232.5         May       0       25.0       6.0       2.8       18.1       5.4       .3       1.3       .1       123.4         Jun       112.3       1.2       .8       2.7       .1       1.5       0       117.0         Jul       0       117.8       .6       .2       1.4       0       1.6       0       121.2         Aug       106.1       .8       .2       1.5       0       1.5       0       109.7         Sep       78.0       .8       .2       1.8       0       1.2       0       81.6         Oct       52.1       1.3       .3       3.1       .1       .9       0       57.2         Nov       87.1	Total	1086.4	88.6	29.5	18.8	30.8	0.3	10.2	28.9	9.9	1244.4
Feb 138.4 16.0 2.1 0 3.0 6.2 3.1 164.6  Mar 149.2 9.0 4.6 0 .9 2.0 1.0 157.5  Apr 0 191.5 21.1 5.2 13.1 7.5 1.3 2.4 .8 232.5  May 0 95.0 6.0 2.8 18.1 5.4 .3 1.3 .1 123.4  Jun 112.3 1.2 .8 2.7 .1 1.5 0 117.0  Jul 0 117.8 .6 .2 1.4 0 1.6 0 121.2  Aug 1 106.1 .8 .2 1.5 0 1.5 0 109.7  Sep 78.0 .8 .2 1.8 0 1.2 0 81.6  Oct 52.1 1.3 .3 3.1 .1 .9 0 57.2  Nov 87.1 16.9 3.2 0 2.0 3.1 1.5 107.4  Dec 53.6 6.3 3.0 0 0 .6 1.6 .7 59.8								I .			
Feb 138.4 16.0 2.1 0 3.0 6.2 3.1 164.6  Mar 149.2 9.0 4.6 0 .9 2.0 1.0 157.5  Apr 0 191.5 21.1 5.2 13.1 7.5 1.3 2.4 .8 232.5  May 0 95.0 6.0 2.8 18.1 5.4 .3 1.3 .1 123.4  Jun 112.3 1.2 .8 2.7 .1 1.5 0 117.0  Jul 0 117.8 .6 .2 1.4 0 1.6 0 121.2  Aug 1 106.1 .8 .2 1.5 0 1.5 0 109.7  Sep 78.0 .8 .2 1.8 0 1.2 0 81.6  Oct 52.1 1.3 .3 3.1 .1 .9 0 57.2  Nov 87.1 16.9 3.2 0 2.0 3.1 1.5 107.4  Dec 53.6 6.3 3.0 0 0 .6 1.6 .7 59.8		,		,	,	,	,				
Feb 138.4 16.0 2.1 0 3.0 6.2 3.1 164.6  Mar 149.2 9.0 4.6 0 .9 2.0 1.0 157.5  Apr 0 191.5 21.1 5.2 13.1 7.5 1.3 2.4 .8 232.5  May 0 95.0 6.0 2.8 18.1 5.4 .3 1.3 .1 123.4  Jun 112.3 1.2 .8 2.7 .1 1.5 0 117.0  Jul 0 117.8 .6 .2 1.4 0 1.6 0 121.2  Aug 1 106.1 .8 .2 1.5 0 1.5 0 109.7  Sep 78.0 .8 .2 1.8 0 1.2 0 81.6  Oct 52.1 1.3 .3 3 3.1 .1 .9 0 57.2  Nov 87.1 16.9 3.2 0 2.0 3.1 1.5 107.4  Dec 53.6 6.3 3.0 0 0 .6 1.6 .7 59.8	Jan	53.4	4.1	1.4		0		.6	1.4	.7	58.8
Nar         149.2         9.0         4.6         0         .9         2.0         1.0         157.5           Apr         191.5         21.1         5.2         13.1         7.5         1.3         2.4         .8         232.5           May         95.0         6.0         2.8         18.1         5.4         .3         1.3         .1         123.4           Jun         112.3         1.2         .8         2.7         .1         1.5         0         117.0           Jul         0         117.8         .6         .2         1.4         0         1.6         0         121.2           Aug         106.1         .8         .2         1.5         0         1.5         0         109.7           Sep         78.0         .8         .2         1.8         0         1.2         0         81.6           Oct         52.1         1.3         .3         3.1         .1         .9         0         57.2           Nov         87.1         16.9         3.2         0         2.0         3.1         1.5         107.4           Dec         53.6         6.3         3.0         0	Feb		16.0	2.1		0		3.0	6.2		164 6
Apr 0 191.5 21.1 5.2 13.1 7.5 1.3 2.4 .8 232.5 May 0 95.0 6.0 2.8 18.1 5.4 .3 1.3 .1 123.4 Jun 0 112.3 1.2 .8 2.7 .1 1.5 0 117.0 Jul 0 117.8 .6 .2 1.4 0 1.6 0 121.2 Aug 1 106.1 .8 .2 1.5 0 1.5 0 109.7 Sep 78.0 .8 .2 1.8 0 1.2 0 81.6 Oct 52.1 1.3 .3 3.1 .1 .9 0 57.2 Nov 87.1 16.9 3.2 0 2.0 3.1 1.5 107.4 Dec 53.6 6.3 3.0 0 0 .6 1.6 .7 59.8	Mar	149.2									
May     Q     95.0     6.0     2.8     18.1     5.4     .3     1.3     .1     123.4       Jun     112.3     1.2     .8     2.7     .1     1.5     0     117.0       Jul     0     117.8     .6     .2     1.4     0     1.6     0     121.2       Aug     106.1     .8     .2     1.5     0     1.5     0     109.7       Sep     78.0     .8     .2     1.8     0     1.2     0     81.6       Oct     52.1     1.3     .3     3.1     .1     .9     0     57.2       Nov     87.1     16.9     3.2     0     2.0     3.1     1.5     107.4       Dec     53.6     6.3     3.0     0     .6     1.6     .7     59.8					12 1						233 6
Jul     501       Jul     517.8       Aug     106.1       .8     .2       1.5     0       1.5     0       1.5     0       1.5     0       1.5     0       1.5     0       1.5     0       1.5     0       1.5     0       1.5     0       1.6     0       1.8     0       1.2     0       81.6       0ct     52.1       1.3     .3       3.1     .1       .9     0       57.2       Nov     87.1       16.9     3.2       0     2.0       3.1     1.5       107.4       100.1       100.2     1.6       100.2     1.6       100.2     1.6       100.2     1.6       100.2     1.6       100.2     1.6       100.2     1.6       100.2     1.6       100.2     1.6       100.2     1.6       100.2     1.6       100.2     1.6       100.2     1.6       100.2     1.6	ADI O										
Jul     501       Jul     517.8       Aug     106.1       .8     .2       1.5     0       1.5     0       1.5     0       1.5     0       1.5     0       1.5     0       1.5     0       1.5     0       1.5     0       1.5     0       1.6     0       1.8     0       1.2     0       81.6       0ct     52.1       1.3     .3       3.1     .1       .9     0       57.2       Nov     87.1       16.9     3.2       0     2.0       3.1     1.5       107.4       100.1       100.2     1.6       100.2     1.6       100.2     1.6       100.2     1.6       100.2     1.6       100.2     1.6       100.2     1.6       100.2     1.6       100.2     1.6       100.2     1.6       100.2     1.6       100.2     1.6       100.2     1.6       100.2     1.6	may N				10.1	· · · · · · · · · · · · · · · · · · ·					
Aug → 106.1       .8       .2       1.5       0       1.5       0       109.7         Sep 78.0       .8       .2       1.8       0       1.2       0       81.6         Oct 52.1       1.3       .3       3.1       .1       .9       0       57.2         Nov 87.1       16.9       3.2       0       2.0       3.1       1.5       107.½         Dec 53.6       6.3       3.0       0       .6       1.6       .7       59.8	UUII										
Aug → 106.1       .8       .2       1.5       0       1.5       0       109.7         Sep 78.0       .8       .2       1.8       0       1.2       0       81.6         Oct 52.1       1.3       .3       3.1       .1       .9       0       57.2         Nov 87.1       16.9       3.2       0       2.0       3.1       1.5       107.1         Dec 53.6       6.3       3.0       0       .6       1.6       .7       59.8		117.8	.6	.2		1.4		0	1,6	0	121.2
Sep     78.0     .8     .2     1.8     0     1.2     0     81.6       Oct     52.1     1.3     .3     3.1     .1     .9     0     57.2       Nov     87.1     16.9     3.2     0     2.0     3.1     1.5     107.4       Dec     53.6     6.3     3.0     0     .6     1.6     .7     59.8	Aug H	106.1	.8	.2				0		0	
Oct     52.1     1.3     .3     3.1     .1     .9     0     57.2       Nov     87.1     16.9     3.2     0     2.0     3.1     1.5     107.4       Dec     53.6     6.3     3.0     0     .6     1.6     .7     59.8			-8	.2		1.8					81.6
Nov     87.1     16.9     3.2     0     2.0     3.1     1.5     107.4       Dec     53.6     6.3     3.0     0     .6     1.6     .7     59.8											
Dec 53.6 6.3 3.0 0 .6 1.6 .7 59.8			16.0								
				3.2				2.0	3.1	1.5	107.4
Total 1234.5 84.1 24.0 31.2 23.4 0 8.9 24.7 7.9 1390.7	Dec	53.6	6.3	3.0		0		.6	1.6	.7	59.8
2002 100   200   200   200   200	Total	1234.5	84.1	24.0	31.2	23 11	0	8 9	24 7	7.0	1300 7
	Total		0.1.1	27.0	7	-J. 17		0.9	C-1.	1.7	1370.1

#### TABLE I-1 (3 of 7)

## IMPAIRED INFLOW TO MARYSVILLE RESERVOIR UNDER ASSUMED 1995 CONDITIONS OF UPSTREAM DEVELOPMENT

I	Release	Natural accre-	Accre-	1			Matural		Yuba	
I		1	Accre-							
I							accre-		River	
		tions	tions in				tions	Impaired	accre-	
	from	between	Col.(2)				between	flow of	tions	
	Narrows		intercep-		Diver-	Spills	Bitney	French		T 3
1				C		_			below	Impaired
1 7		ton,Lang		Spills	sions	at	Corner	Dry	Engle-	inflow
	plants,	Crossing,		at	to	Bitney	Reservoir	Creek	bright	to
	and	and	Spaulding	Spaulding	Excelsior	Corner	and Deer	at	Dam and	Marys-
	spills	Bowman	Conduit	Dam		Reservoir		mouth	Deer Cr.	
		gages								
	1/	_	2/	3/	4/	5/	gage	6/		Reservoir
	(1)	+ (2)	- (3)	+ (4)	+ (5)	+ 6	+ (7)	+ (8)	+ (9)	= (10)
Jan	79.9	9.6	3.2		0		1.9	5,3	2.8	96,3
Feb	570.4	52.1	5.6		0	12.2	7.3	42.9	8.6	687.9
Mar	321.9	20.4	4.2	5.0	0	5.6	2.4	22.8	3.2	377.1
	252.8	29.1	6.4	45.4	7.5	3.3	1.9	8.0	1.5	343.1
Apr	252.0	20.1		77.4						
May	258.1	18.9	12.2	116.3	7.5		•7	2.0	•3	391.1
0 000	208.6	7.6	6.8	64.0	7.5		•3	1.6	.1	282.9
Jul O	166.5	2.0	1.8		3.5		.1	1.7_	0	172.0
Aug -	107.1	1.4	1.1		2.3		0	1.6	0	111.3
Sep	78.0	1.0	0		2.0		.1	1.2	0	82.3
Oct	51.8	1.1	.6				0	.9_	0	
					2.5					55.7
I.ov .	43.5	7.0	3.3		0		.9	1.4	.6	50.1
Dec	37.8	14.24	2.5		0		.5	1.3	.6	12.1
Total 2	2176.4	154.6	47.7	230.7	32.8	21.1	16.1	90.7	17.7	2692.4
Jan	57.1	6.2	•9		0		1.0	2.8	1.5	67.7
Feb	93.3	7.9	3.1		0		1.1	3.0	1.3	103.5
Mar				20 (		16.0				103.3
	720.8	56.0	10.6	39.6	0		5.9	40.4	7.2	875.3
Apr co	176.5	19.4	5.7	62.5	7.5	5.2	1.3	4.6	.9	272.2
lay	130.2	9.4	8.2	67.6	6.7		.2	1.4	.1	207.4
Jun (V	112.2	1.9	-5		2.6		.1	1.5	0	117.8
Jul O	117.7	0.9	.4		2.0		.1	1.7	0	122.0
Aug -	106.0	1.1	.6		1.9		0	1.5	0	109.9
Sep	78,0	0.8	2		1.7		.1	1.2	0	81.6
Oct	51.7	0.9	0		2.5			-2	0	56.1
Nov	33.2	2.1	.5		0		•3	.4	.1	35.6
Dec	42.1	4.1	0		0		- 4	.8	. 4	47.8
Total :	1718.8	110.7	30.7	169.7	24.9	21.2	10.6	60.2	11.5	2096.9
									)	
Jan	45.2	2.3	. 3		0		•3	.7	. 3	48.5
Feb	55.9	6.6	1.0		0		.9	1.4	.7	64.5
	66.0				0		.7		1.0	74.3
Mar	66.9	7.2	3.3		-			1.8		
Apr	59.9	10.0	3.6		7.5		1.1	1.8	.6	77.3
May Jun (V	86,3	10.2	7.5		7.5		, /,	1.3	.2	St.
Jun (V	102.2	4.3	3.4		7.3		•3.	1.3	.1	112.1
Jul O	116.0	1.2	.3		3.1		.2	1.4	0	121.1
Aug -	98.6	1.1	3		2.3		0	1.0	0	102.7
		0.8	0		19		0	.8	0	75.1
Sep	72.0									
Oct	52.4	1.0	.2		2.8		0	.1	0	56.1
Nov	29.3	0.7	6.6		0		.1	.2	0	30.0
Dec	80.4	13.6	6.6		0		1.9	3.7	1.9	94.9
Total	866.0	59.0	27.3	0	32.4	0	5.9	15.5	4.8	956.3

#### TABLE I-1 (4 of 7)

## IMPAIRED INFLOW TO MARYSVILLE RESERVOIR UNDER ASSUMED 1995 CONDITIONS OF UPSTREAM DEVELOPMENT

Jan Feb Mar Apr O May Jun O Aug C Sep Oct Hov Dec	Release from Narrows Power-plants, and spills 1/ 1 73.8 74.7 131.0 124.0 88.2 105.1 110.9 98.7 72.9 50.7 34.3 31.0	Natural accretions between Washing ton, Lang Crossing, and Bowman gages + (2) 9.5 9.7 14.8 13.3 8.8 2.6 0.9 1.0 0.8 0.9 2.3 1.3	intercep- ted by Bowman	Spills at Spaulding Dam 3/+4		Spills at Bitney Corner Reservoir + 6	Natural accre- tions between Bitney Corner Reservoir and Deer Creek gage + 7 1.4 1.9 2.8 .5 .1 0 .1 0 .1 .1	Impaired flow of French Dry Creek at mouth 6/+8 3.2 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5	tions below Engle- bright Dam and Deer Cr. gage + 9  1.7 1.9 3.1 .6 .2 .1 0 0 0 .2	Impaired inflow to Marys-ville Reservoir = 10 88.8 89.7 155.3 161.1 117.3 111.2 115.5 103.3 76.2 55.7 36.9 32.0
Total	995.3	65.9	23.2	32.2	28.3	3.9	8.3	24.4	7.9	32.0
		1							1.7	1300
Jan Feb Mar Abr Jun Jul O Aug Sep Oct Mov Dec Total	52.3 48.0 69.2 44.8 80.8 94.4 116.2 96.1 74.4 69.3 41.3 40.3	3.9 4.1 7.5 5.4 3.4 1.3 0.5 0.7 0.6 1.0 1.9 7.1 37.4	.2 .14 .9 3.8 2.7 1.0 .3 0 .2 .6 .2	0	0 0 0 5.1 2.9 2.3 1.6 1.6 1.6 3.1 0	0	.6 .5 .8 .2 .1 0 0 0 .1 .3 2.0	.9 .8 ].1 .9 1.0 1.0 .7 .4 .3 .2 .6 1.6	.5 .½ .7 .1 0 0 0 0 0 .1 .3 2.4 4.5	58.0 53.4 78.4 53.0 85.5 98.0 118.7 98.8 76.7 73.2 14.2 55.9 893.8
Jan Feb Mar Apr ov May Jun Jul O Aug H Sep Oct Nov Dec Total	76.0 83.0 109.1 79.0 117.1 123.2 154.2 105.9 77.8 52.0 29.0 30.7	6.3 10.6 11.9 16.9 20.7 7.1 1.6 1.3 0.8 0.9 1.2 1.1 81.0	0.5 1.9 1.1 5.8 11.8 6.6 1.5 0 .2 0 .5 .9 33.8	19,0 37.6	0 0 0 7.5 7.5 7.5 4.0 2.8 2.0 2.8 0 0	2.7 1.8 1.0	2.0 2.2 2.3 1.3 1.0 0.4 .2 .1 .1	5.0 5.3 6.5 1.0 2.2 1.7 1.6 1.3 .8 .3 .14	2.7 2.5 2.9 .9 .5 .2 0 0 0	91.5 101.7 134.3 105.6 157.2 171.4 160.2 111.7 81.8 56.6 30.1 31.8

#### TABLE I-1 (5 of 7)

## IMPAIRED INFLOW TO MARYSVILLE RESERVOIR UNDER ASSUMED 1995 CONDITIONS OF UPSTREAM DEVELOPMENT

			1				010 1000	·		
		Natural					Natural		Yuba	
		accre-	Accre-				accre-		River	-
1	Release		tions in				tions	Impaired	accre-	
	from	between	Col.(2)				between	flow of	tions	
ļ					Diver-	Spills	Bitney	French	below	Impaired
İ		Washing-				at		Dry	Engle-	inflow
	Power-	ton, Lang	ted by	Spills	sions		Corner			
		Crossing,	Bowman	at	to	Bitney	Reservoir		bright	to
l	and	and		Spaulding	Excelsion	Corner	and Deer	at	Dam and	Marys-
1	spills	Bowman	Conduit	Dam	Ditch	Reservoir		mouth	Deer Cr.	ville
	1/	gages	2/	3/	4/	5/	gage	6/	gage	Reservoir
1	(1)	+ (2)	<u>2/</u> - 3	+ (4)	+ (5)	+ (6)	+ (7)	+ (8)	+(9)	= (10)
Jan	41.2	1.8	0		0		.2	.6	.2	44.0
Feb	40.5	2.7	.2		0		.3	.8	.3	44.4
	71.7	8.2	1.8	-	0		2.0	3.8	2.1	86.0
Mar	61.6	11.6	3.4	_	7.5		1.1	2.0	.7	81.1
Apr	86.5								.5	103.4
vay		12.1	5.9	1.0	7.5		1.0	1.7		
Jun M	110.4	6.7	6.0	4.0	7.5	_	•5	1.4	.1	124.6
Jul o	113.7	1.3	1.1		3.5		.1	1.2	0	118.7
Aug -	98.6	1.0	.4		2.3		.1	1.1	0	102.7
Sep	72.9	0.7	.4		1.9		.1	.9	0	76.1
Oct	51.2	1.2	.2		2.8		.1	.2	0	55.3
Ilov .	30.2	1.4	1.0		0		.1	.2	0	30.9
Dec	43.7	5.3	1.4		0		.4	.7	. 4	49.1
Total	822.2	54.0	21.8	4.0	33.0	0	6.0	14.6	4.3	916.3
Jan	68.8	6.7	1.5		0		.8	1.3	.8	76.9
Feb	72.5	7.4	2.7		0		1.2	1.8	1.0	81.2
Mar	75.8	9.5	5.2		0		.7	1.1	.77	82.6
Apr	44.5	6.4	5.1		6.3		.2	.9	.1	53.3
liay =	81.6	3.2	2.1		3.1		.1	.9	.1	86.9
Jun M	96.4	1.2	.8		1.9		.1	1.1	0	99.9
Jul o			.4		1.6		0	1.0	0	116.0
	113.2	0.6		-			0	.6	O	95.5
Aug H	92.7	0.7	0	-	1.5					
Sep	70.7	0.6	.4		1.6		0	.2	0	72.7
Oct	63.6	0.7	0		2.3		-1	.2	0,	66.9
Nov	37.9	3.3	1.9		0		.6	.9	4	41.2
Dec	25.0	3.1	1.4		0		-4	1.2	.6	28.9
Total	842.7	43.4	21.5	0	18.3	0	4.2	11.2	3.7	902.0
										1
Jan	76.1	8.6	1.0		0		1.4	4.1	2.2	91.4
Feb	75.3	8.0	1.3		0		1.8	4.8	2.2	90.8
Mar	79.0	9.7	3.2		0		1.8	5.0	2.5	94.8
Anr	171.5	36.6	6.9		7.5	4.3	4.4	10.0	3.6	231.0
Apr May	267.3	18.4	12.2	53.2	7.5	1.3	1.3	2.5	.7	340.0
Jun m	175.2	6.3	5.7	30.8	7.5		0	1.6	1.1	215.8
Jul o	148.5		7.1	50.0	3.6		1	1.7	0	154.2
Aug H	105.9	1.2	.9		2.7		0	1.6	0	110.4
	78.0	.9	0		2.5	1	0	1.2	0	82.6
Sep					2.9		,2	.9	0	55.8
Oct	51.3	1.0	,5		0		.1	1	1	30.5
Nov Dec	29.2	1.4	7		0		1	.6	.2	33.8
	31.7	1.7	5-5-	01.0	(	F 6	T	34.4	11.6	1531.1
Total	1289.0	94.9	33.8	84.0	34.2	5.6	11.2	34.4	11.0	1,7,7.

#### TABLE I-1 (6 of 7)

## IMPAIRED INFLOW TO MARYSVILLE RESERVOIR UNDER ASSUMED 1995 CONDITIONS OF UPSTREAM DEVELOPMENT

r		77 - 1 7					N=+3		37. 2	7
		Natural	Λ				Natural		Yuba	
		accre-	Accre-				accre-		River	
	Release	tions	tions in					Impaired	accre-	
	from	between	Col.(2)				between		tions	
	Narrows	Washing-			Diver-	Spills	Bitney	French	below	Impaired
	Power-	ton, Lang	ted by	Spills	sions	at	Corner	Dry	Engle-	inflow
	plants,	Crossing,	Bowman	at	to	Bitney	Peservoir	Creek	bright	to
	and	and		Spaulding	Excelsion	Corner	and Deer	at	Dam and	Marys-
	spills	Bowman	Conduit	Dam		Peseryoir		mouth	Deer Cr.	ville
	1/	gages		3/	4/	5/	gage		gage	Reservoir
	1/		<u>2/</u> -(3)			+ 6	+ (7)	+ (8)		
		+ (2)		+ (4)		, (9)			+ (9)	= 10
Jan	133.3	18.6	3.7		0		4.2	9.8	5.2	167.4_
Feb	388.0	29.8	3.9		0	18.0	6.5	46.3	6.3	491.0
Mar	257.4	14.7	4.9		0	9.2	1.1	16.3	2.3	296.1
Apr	229.3	22.0	8.9	61.6	7.5	2.9	1.0	3.8	•9	320.1
May 0	187.6	12.4	11.4	106.5	7.5		•5	1.5	.2	304.8
Jun M	122.3	4.4	4.0	36.3	4.8		•3	1.6	.1	165.8
Jul o	146.7	1.3	1.2		2.9		.2	1.7	0	151.6
A	106.0	1.2	.1		2.5		.1	1.6	0	111.3
Sep H	77.9	.9	.7		2.2		.1	1.3	0	81.7
Oct	51.9	.8	0		2.5		.1	.8	0	56.1
liov	29.0	1.1	0		0		.1	1.1	.1	31.4
Dec	30.8	1.3	1.0		0		.1	2.1	.1	33.4
										فاستحادها المستحدة الم
Total	1760.2	108.5	39.8	204.4	29.9	30.1	14.3	87.9	15.1	2210.7
		1								
Jen	40.3	1.4	.2		Q		.2	3.2	.2	45.1
Feb	79.5	10.4	1.2		0		2.0	3.7	2.4	96.8
Mar	103.9	13.1	2.6		0		2.7	10.2	3.6	130.9
Apr	186.5	22.6	4.9		7.5	2.6	2.7	7.6	2.1	226.7
May >	272.2	19.7	13.2	104.6	7.5	1.9	1.5	2.2	.8	397.2
Jun M		4.3	3.9	2.3	7.5		.3	1.6	.1	126.8
Jul on	144.2	1.3	1.2		3.8		.2	1.7	.1	150.1
0	105.9	1.2	0		2.9			1.6		
Sep -	77.8	0.9	0				.1		0	82.6
Oct					2.5			1.3	0	
Nov	51.7	1.0	.9		2.6		.1	.9	0	55.4
	38,4	4.1	1.6		0		.6	1.1	-14	43.0
Dec	228,5	21.8	10.2		0		2.2	5.4	2.7	250.4
Total	1443.5	101.8	39.9	106.9	34.3	4.5	12.7	40.5	12.4	1716.7
			·							
Jan	102.2	5.9	1.4		0		1.5	4.5	2.3	115.0
Feb	297.6	17.2	2.5		0	5.3	3.6	31.6	4.4	357.2
Mar	545.2	35.4	2.6		0	36.1	7.3	76.5	9.7	707.6
Apr co	337.0	31.2	6.5	28.9	7.5	11.6	2.8	11.8	2.2	429.5
May	394.4	30.8	15.5	138.9		5.5	2.0	4.8	1.0	569.4
May Jun	287 1				7.5			I.	I	
Jul o	287.1 187.8	10.5	9.5	65.9	7.5		.6	1.9	.2	364.2
	108.0	2.3	2.1		5.2		.2	1.7	1	195.2
Aug H		1.9	5		3.7		1	1.6		114.9
Sep	77.7	1.2	4		3.0		1	1.3	0	82.9
Oct	51.0	1.6	.5		5.0		.2	9	-	58.3
Nov	31.0	2.3	ii.		0		-2	1		33.7
Dec	33.5	2.5	.7		0		.2	.7	-3	36.5
Total	2452.6	142.8	42.6	233.7	39.4	58.5	18.8	11:0.7	20.5	3064.4
										, , , , , , , , , , , , , , , , , , , ,

#### TABLE I-1 (7 of 7)

## IMPAIRED INFLOW TO MARYSVILLE RESERVOIR UNDER ASSUMED 1995 CONDITIONS OF UPSTREAM DEVELOPMENT

							Natural		Yuba	
		1	Accre-				accre-		River	
	Release		tions in				tions	Impaired	accre-	
	from		Col.(2)				between	flow of		
	Narrows	Washing-			Diver-	Spills	Bitney	French	tions	T
	Power-	ton, Lang	ted by	Spills	sions	at	Corner		below	Impaired
	plants,	Crossing	Bowman	at	to		Reservoir	Dry	Engle-	inflow
	and	and		Spaulding					bright	to
	spills	Bowman	Conduit					at	Dam and	Marys-
		1		Dam	Ditch	Reservoir	§	mouth	Deer Cr.	ville
	1/	gages	2/	3/	4/	5/	gage	6/	gage	Reservoi
	1	+ (2)	-3	+ (4)	+ (5)	+ 6	+ (7)	+ (8)	+ (9)	= (10)
Jan	43.6	_2.8	1.0		0		-5	.8	1,	47.1
Feb	41.3	3.4	1.0		0		.6	.9	- 4	45.6
Mar	75.5	11.0	3.1		0		1.5	3.4	1.9	90.2
Apr	50.0	11.6	5.7		7.5		5	1.6	1	65.9
May o	80.8	4.3	3.4		4.5		.3	1.1	1	87.7
Jun M	94.9	1.3	1.1		2.6		.2	1.4	0	99.3
Jul o	111.7	.7	.3		2.0		.1	1.5	0	115.7
Aug	91.6	.8	0		1.9		0	1.4	0	95.7
Sep	69.1	.7	.4		1.9		0	1.1	0	72.4
Oct	62.1	1.0	.9		2.4		- 1	.8	.1	65.6
Hov	29.8	.8	.2		0			.2	.1	
Dec	25.0	1.3	1.0		0		.1.	2.7	1	30.8
Total	775.4		18.1	0	22.8		4.0	,		I
TOURL	112.4	39.7	10.1		22.0	0	4.0	16.9	3.5	844.2
Jan	124.8	18.2	5.4		0		3.3	6.4	3.7	151.0
Feb	264.3	30.2	5.0		0	0.3	4.7	15.7	5.7	315.9
Mar	562.0	37.0	10.3		0	16.2	4.7	40.2	6.0	655.8
Apr	282.3	21.6	7.9	7.0	7.5_	6.1	1.7	3.2	.8	322.3
May O	94.2	9.0	8.1	48.0	5.5		0.4	1.4	.1	150.5
Jun →	112.1	1.9	1.7	78.9	2.0		0.1	1.5	0	194.8
Jul o	117.8	.9	•3		2.2		0.1	1.6	0	122.3
Aug	106.1	1.1	0		2.3		0	1.6	0	111.1
Sep	78.0	.9	.β		2.1		0.1	1.3	0	81.6
Oct	51.4	.8	0		3.1		0.2	•9	0	56.4
Nov	33.6	2.4	1.2		0		0.4	.6	.2	36.0
Dec	80.3	15.1	3.8		0		2.7	5.4	2.7	102.4
Total	1906.9	139.1	44.5	133.9	24.7	22.6	18.4	79.8	19.2	2300.1
Nov Dec Total	33.6 80.3 1906.9	2.4 15.1 139.1 s "Defini	3.8 44.5 tive Rese	rvoir Ope	0 0 24.7	d Power S	0.4 2.7 18.4 tudy." Ma	.6 5.4 79.8	.2 2.7 19.2	36. 102.
	rom DWR o	peration peration tric Comp	study of any works	Nevada Ir •	rigation rigation Water Re	District	and Pacif			

TABLE I-2

RUNOFF OF SOUTH YUBA RIVER AT LANG CROSSING Estimated and Computed Natural Flows

	-			1											<u> </u>								1		-	
TOTAL	417.6		325.0	135,7	330.3	243.0	525.4	377.7	194.6	289.4	138.9	332.0	201.0	191,5	385.3	437.6	311,1	529.3	150.1	399,9	402.5					
SEPTEMBER	3.3	2.3	14.3	1,8	2 8	1.7	3.6	0°4	2.6	2,2			2,4					3.4	1.9	2,1	3.7					
AUGUST	5,1	4.07		2.0	4.3	2,0	6.1		4.3	2.9	1.5	4.4	3,0	1.6	3.5	4.7	3,7	8,2	1,6		5,7					
JULY	12.5			2,0	11.9	1.7	21.1		5.3	904	1.6	15,9	7.4	1,8	11.2	14.9	8.7	22,1	1.9	407	15.0					
JUNE	72,5	143.5	0.94	5.9	47.7	9,3	105.2	18.7	33.1	34.3	12,5	78,5	69,3	12,6	73.8	76.9	45.2	106,8	8.2	31.8	54,2					
MAY	117.9	185.4	109.9	38.2	100.1	55.8	147.7	98.8	85.0	9008	35,3	120.6	71,1	25.5	145.0	137,6	157.5	200.1	34.6	110,1	160,1					
APRIL	62,9	4407	70.9	37.5	65.4	87.4	0.86	8.46	38.3	9.62	42.4	60.2	37.6	43.4	110,2	103,1	63,3	79.0	59.9	81,4	57.6					
MARCH	43.3	14.2	21.5	10.9	28.8	39.2	47.6	88,3	12.4	33.7	21.3	28.2	3,6	0*87	11.2	39,9	17.0	29.2	19.9	77.4	39.3					
FEBRUARY	15.8	11.9			42.8			13.7	4.4	19.4	6.3	8,5	1,7	18.7	0.6	26.6	8.5	12,6	4.1	37.8	29.6					
JANUARY	27.4	3.6	13.8	5.8	9.1	9.5	20.5	13.1	3.3		904	5.0	1,8	15.8	5.7	23,8	6.	- 6	5.0	41.8	15.6					
DECEMBER	21.0	hoh	19.6	9.7	8.3	9.7	14.9	9.8	2.3	13,6	2,2	9.4	1.3	10,6	0.9	2,8	1,9	50.7	5.7	3.7	15.6					
NOVEMBER	31.7	201	5.0	5-1	7.5	6.4	19.4	21.6	2.6	80	3,4	2,0	.9	5.5		2.8	1.0	4.8	5.1	1.5	4.8					
OCTOBER		- el	2.6		1.6	405	- 3	3.5	9	2	- 이	1.8	6.		1,1		1.0	1.4	2.2		1.3					
SEASON	21	22	23	24	1924-25	26	27	28		1929-30	31	32	33	34	1934-35	36	37	38	39	1939-40	41					

TABLE I-3

RUNOFF OF CANYON CREEK BELOW BOWMAN LAKE Estimated and Computed Natural Flows

NOVEMBER	DE	JANC	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	TOTAL
10.1	0.9	9.5	4.5	13.1	13.6	24.2	15.4	4.1	1.8	1.5	106,0
	1.4	1.4	3.8	8.4	10.9	42.9	3404	0.9	1.8	1.2	110,3
1.9	4.9	7.0	2.3	4.1	15.5	26,1	12.4	7.04	1.6	1.5	83.9
1.3	1,2	1.5	4.3	2.4	7.5	6.4	1,7	1,3	1,2	1.3	32.6
2,7	4,1	3.4	14,6	8,6	13.1	20.4	9.9	400	ಹಿ	80	83,2
2.3	4.7	3.5	5.2	11.4	17.0	11,0	1,9	.5	-4.		9.09
7.2	7.5	7.9	14.0	14.5	20,0	30.6	22,2	7,2	1,2	1,1	134.0
6.2	2.5	2.2	7.04	25.3	12.8	18,6	0.4	2.0	1.4	1.2	85,0
1.0	1.2	1.2	2.5	7.4	8,9	18.7	8.9	1.9	6	80	51.9
6.3	8.5	14.014	5.9	5,6	15,2	13.9	4.0	1.4	5	9*	60,7
1.3	1.1	1.7	1.2	5.8	8.0	8.8	2.5	90	7	70	32.4
	2,5	4.5	6.9	8,6	12.4	26.7	18,9	5.8	1,0	.7	89.8
77.	6	8	1.6	4.5	0 8	13.4	16,2	2.9	- 20	80	50°5
1.00		0.4	5,3	12.6	12.4	9.7	1,3	5,	2	47.	50,7
2.5	b  4	3.0	3.3	6.4	17.9	30.7	15,2	3,8	.7	.5	86.1
1,0	1.3	<u>ا</u> ۔	9.3	11.8	21.2	27.2	14.4	4.8	6	89	103.6
		2.1	3.6	9.9	11,8	31,7	10.5	3,0	t)	.7	72.7
1.8	27.0	4.1	5,7	5.9	14.5	40.7	30.1	7.8	1.7	1.0	141.0
2.1	3.1	3.1	1.1.7	7,1	14.0	න ද	2,3	70	83	9.	44405
	1.9	14.0		26.4	17.2	25.3	5.9	1.6	5	9	108.8
2,0	8,7	8.2	8.6	12.0	14.2			5.7	1.3.	1.2	112.6

TABLE I-4

RUNOFF OF SOUTH YUBA RIVER NEAR WASHINGTON Estimated Natural Flows

NOVEMBER	MBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	181	SEPTEMBER	TOTAL
2	53.8	39.1	53.0	31.3	75.9	6.06	154.0	93.4	18.0	8,1	5.8	631.2
	4.3	10,2	, e	29.9	32,2	76.6	263.0	197.2	25.3	8.4	4.07	7.499
	6.6	41,6	26,1	18,0	33,0	108,0	152.8	64.5	22.6	9,1	7,2	498,1
	7.9	7.7	7.6	27.4	15.9	51,7	47.4	8,2	3.7	0"7	3.9	197.6
	3.4	17.8	18.1	86.8	47.4	97.9	132.2	6.09	16.9	4.9	7 8	506.2
	9.0	16,9	17,1	37.0	59.6	125,5	72.8	12.4	2.8	3.2	3.0	368.9
7	43.5	28.7	38.0	106.2	82.5	147.1	197.2	135.0	30.3	8.7	5.7	826.0
Ì	34.8	16.7	21,5	29.0	169.6	127.0	126,8	24.6	7.6	7.4	0.9	578,8
	5.7	7.6	6.8	13,5	27.0	57.2	113.9	44.02	8,4	6.3	4.2	297.3
	1.8	40.7	25.8	35,0	54.1	108,1	103.3	6.04	6.9	4.4	3.6	426.8
	7.0	9.4	10,2	11,6	34.6	8.09	47.5	16,3	2,7	2,5	2,5	203,2
	4.7	14.2	15.8	26.0	51.7	89.5	168,0	104,8	23,3	6.7	3,8	512,3
_	2,5	3.4	4.4	6.0	16.3	57.2	9.96	92.2	11.6	4.7	3,9	301,1
	8.7	20.5	26.5	31.4	70.1	62.2	33,3	15.1	2.9	2.6	2.7	286.4
_	12,6	12,1	17.3	20.3	25.8	164.7	194.1	95.3	16,2	5.3	3.2	569,3
	5.2	5.8	52.4	65.7	7.99	146,3	177.2	95.7	21.0	8.9	4.5	650.6
	2,5	4.2	404	22,5	36.7	97.7	208.9	0°09	13.0	5.7	0.7	461,9
	10,7	99°5	21.0	35.5	70.5	124.7	271.6	147.4	32,2	11,8	5.6	833.6
	9.5	11.3	10.9	9.2	38.0	85.5	47.1	11.8	3.3	207	3,2	237.6
	2.9	6°9	74.0	80,1	140.8	120,2	144.4	39.6	7.2	4,01	3.6	632,6
	9.2	7.65	41.5	65.2	66.69	7.06	215,2	73.0	22.6	ಬ	6,1	644,2
	12,0	59.4	74.7	58.3	33.9	122,8	159,3	135,3	38.6	7.6	5,5	.712,3
_												

TABLE 1-5

RUNOFF OF DEER CREEK NEAR SMARTVILLE Estimated and Computed Natural Flows

Sq. Miles			_ !			_											-									
84.3	TOTAL	198.0	164.1	87.9	29.3	9.68	58.5	145.1	100.5	38,8	80.7	28.4	101.3	44,01	35.9	101.5	11.8.4	81.8	174.7	37.7						
Area 8	SEPTEMBER	.5	-4-	1.0	5	.5	w	47.	70	5	40	.2	50	4.	.2	40	40	.5	.7	4/4	170	6.				
,000 AF	AUGUST	7.	0	5	3	7.	.2	40.	7.	Ü	3	2.	.5	7.	2,5	4.	7.	5.	∞.	3	63	1,0				
Unit 1,000	JULY	1.6	2.8	1.3	7.	6.	7.	6.	.7	6.	.5	~	1.4	٦. ٦.	4.	1,0	1.2	1.4	1.9	• /•	6.3	2.1				
	JUNE	3.4	9.3	2.0	3	2.1	య	2.3	1.0	2.2	1.3	9.	3.7	3	ω.	2.1	2.9	2.6	4.7	1.7	1.1	2.7				
	MAY	7.7	28.3	3.7	00	3.5	2.3	5.6	2.4	3.4	3.3	20	0.6	3.14	1.3	10.3	4.2	12.5	16.5	2.7	3.4	10.0				
	APRIL	12,1	26.0	12.7	2.9	6.6	10.6	16.1	11.5	8.4	7.6	1.5	10.8	8.6	1.9	36.4	8,1	22.3	23.1	4.4	13.7	20.3				
	MARCH	38.4	32.5	2.5	7.5	හ. භා	7.5	20.3	51.4	0	23.5	C.	19.6	15.3	6.7	15.2	9.2	22.1	9°09	12.4	39.1	22.9				
	FEBRUARY							60.5			15.7		22.3						30.1	5.4						
	JANUARY					6.5	. •				11.3					1 9										
	DECEMBER	31.3			3.14	7.1	2.4	5,1	4.6	3014	15.5	. 7	17.1	1.0	0.7	3.8	1.3	0.	17.9	2.0	9.	22.4				
	NOVEMBER	-				0.7	2,4	16.8	7.7	1.9	5	4.2	3.1	6.	C	9.7	1.0	.7	5.0	1.6	5.	3.6				
	OCTOBER	2.4	-					-	1		6		-		_					-		1.2				
	SEABON	1920-21	7	23	24	1924-25		27	28	29	1929-30		1	33	78	1034-35		37	38	39	1939-40	l .				

TABLE I-6

RUNOFF OF YUBA RIVER AT ENGLEBRIGHT DAM Estimated Natural Flows

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BEABON	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	S NO	JULY	AUGUBT	SEPTEMBER	TOTAL
1920-21	41.7	268.1	270.2	380.3	266.8	453.1	358.1	445.1	273.5	67.5	33.9	26.0	2,886.3
-22	27.0	29.0	9. मु	102.7	4.922	246.5	376.4	907.8	9.399	120.0	144.8	27.0	2,860.8
-23	37.8	60.7	244.4	169.7	123.5	169.3	378.4	454.8	206.6	82.5	40,8	36.7	2,005.2
-24	48.2	37.2	43.1	52.4	134.4	60.4	140.7	95.5	25.3	16.3	15.2	15,6	62.3
1924-25	31.6	58.5	6.36	113.2	520.1	223.0	381.6	373.3	148.4	48.9	28.6	25.3	2,046.4
-26	35.7	47.3	69.1	83.0	287.2	225.2	14C.0	203.6	52.7	22.4	17.8	17.2	1,503.2
-27	25.5	229.8	142.1	272.6	720.8	414.1	524.1	569.2	380.7	92.7	36,4	27.2	3,365.2
-28	29.6	125.0	8C.4	115.9	140.9	914.9	419.8	363.6	72.9	33.7	24.0	20,9	2,341.6
-25	23.6	34.7	58.9	46.0	85.1	131.6	183.3	290.6	128.7	36.0	23.8	18.6	1.060.9
925-30	19.5	17.C	263.9	144.6	201.2	285.∟	351.5	277.6	118.5	34.0	22.4	20.2	1.759.6
* 31	21.4	39.5	28.0	(3.3	67.1	340,8	153.5	110.3	42.9	15.9	12,1	12.3	1.517
-38	24.5	31.7	117.0	120.3	167.8	560.0	336.3	544.0	317.8	73.3	30.2	21.1	2,076.9
-33	22.1	24.2	30.0	36.2	44.7	130.9	21.7.12	288.3	264.2	8.44	22,3	18,8	1,143.6
-34	31.1	30.6	ు. బ్	116.7	142.5	250.8	18,14	91.7	40.3	16.8	13.0	13.3	1,019.2
934-35	18.7	58.8	65.9	129.1	9.641	173.0	84. 344	580.7	292.6	4.65	27.5	20.9	2,222.7
-36	55.6	2.62	37.7	325.1	456.5	231.9	503.2	483.4	243.6	62.0	29,3	23.2	2,548.7
15-	22.3	24:27	31.,	34.9	102.3	236.6	356.1	0.2.2	194.7	52.1	27,3	21.4	1,805.6
-39	23.1	70.14	454.6	126.0	335.2	610.4	544.2	3.7.7.5	465.3	118.6	1.04	26.1	3,601.1
-39	2.5%	42.0	50.8	54.0	53.9	196.9	249.7	120,4	49.4	23.5	16.7	16.2	912.6
939-40	21.1	18.9	32.8	350.9	521.7	721.6	460.3	397.9	118.0	34.8	22.3	20.9	2,736.8
-4]	23.8	5.7.2	2,0,2	352.5	480.4	399.3	380.6	653.2	237.7	79.6	38,7	29.3	2,968,6

RUNOFF OF YUBA RIVER AT MARYSVILLE DAMSITE Estimated Natural Flows

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BEABON	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	
10-000	1.5.0	316.0	341.4	2.484	370.0	543.6	379.9	457.0	278.4	69.7	34.5	26,8	3,317,0
22	29.2	34.1	110.5	164.1	306.0	329.6	426.1	953.4	4.089	123.8	46.1	27,8	3,231.1
23	40.2	9-69	306.7	204.0	142.8	188,6	4.00,7	460,3	209,4	84,2	41.6	38,2	2,186,3
777	51.4	71.8	76.5	59.4	152,0		145,1	9.96	25.7	16.8	15.6	16,0	733.0
021.25	33.6	66-3	108.5	137.4	608.5	243.0	398,9	378,6	151,4	50,1	29.3	26,1	2,231.7
26	37.4	51.2	74.2	94.2	339.9	241.5	457.9	206,9	53,8	22,9	18,1	17.6	1,615,6
27	26.8	259.5	153.7	243.0	856.8	452,4	553,2	577,8	383.9	0,46	36.9	27.7	3,675,7
28	30.8	137.9	90.3	137.7		1,029,6	439,6	367,1	74.3	34,5	24.5	21.4	2,550.6
20		37.7	65.7	51.3		148.6	197.0	295.5	131.7	37.1	24,2	19.0	1,130.5
929-30	19.9	17.8	296.4	171.0	233.6	339.9	366.3	283.2	120.3	34.6	22.8	20.7	1,926.5
3	1	45.5	29.2	73.6	75.9	161.2	155.7	111.1	43.6	16,2	12.3	12,5	759.2
32	26.2	37.1	155,1	160,1	207.9	336,1	357.4	557.6	323,0	75.1	31.0	21.8	2,288,4
33	22.8	25.7	32.7	39.7	50.1	164.9	231.9	300,8	268,7	46,2	22,8	19.3	1,225.0
37	32.4	31.9	91,3	130.9	162,6	263,4	190,2	93.4	41,2	17,3	13,2	13,6	1,081.4
93735	0.0[	67.2	75.0	160.2	184,2	210,6	714.5	597.0	295.7	60.7	28,1	21,4	2,434.5
36	27 3	30.9	6 07	8-507	565.3	361.1	519,4	489,3	245.5	63.5	29.9	23.7	2,802,6
27	23.2	25.5	33.5	38.1	200.1	290.6	437.1	621.8	198.4	54.0	28,1	22.2	1,972.9
38		88.2	496.2	158.5	403,8	765.2	591.4	853.3	492.0	121.1	43.4	27.1	4,062,5
39		44.8	54.6	62.2	62.9	226.0	257.9	129.7	51.4	22.0	17.1	16.7	983.3
1939-40		20,1	34.6	411,0	610,8	813.3	7.067	402.3	119,5	35.6	22.7	21.4	3,010.7
77	25.3	62.5	312.6	403.5	561.2	451.2	8.604	8.799	241.4	82,3	40.3	30.5	3,288.4

TABLE I-8

RUNOFF OF FRENCH DRY CREEK AT MOUTH
Estimated Natural Flows

Sq. Miles									<u>}</u>									1									-			1		
107.9	TCTAL	213.7	173.4	8	12.0	o. ₹	9.94	150.7	7.8	23.2	73.5	11.1	98.0	29.1	20.0	97.9	122.7	75.1	186.0	25.3	133.3	148.9	1					1			!	
Arca 10	PTEMBER	0.3	0.0					0.1														4.0	-				-	1		***************************************	1	-
000 A.F.	AUGUST SE																					0.5				;	<u>:</u> :	-		1		
Unit_1.		0.5																								1			_			
	JUNE	1,3	3.9	0.8	0.1	0.0	0.3	0.0	4.0	0.7	0.5	0.1	1.4	1.1	0.3	6.0	6.0	6.0	2.0	0.3	4.0	1.1								1		
	MAY	4.0	14.9	1.7	0.1	1.4	0.0	2.8	1.1	۲.۲	1.6	0.1	4.4	3.5	4.0	5.5	1.6	4.5	8.7	0.5	٥٠٦	4.4				 1					- 1	
	APRIL	8.9																				8.3						;		share communicates and property made on the	1	
		48.3																							The second secon	1				1	1	
	FEBRUARY	39.2			- 6	9					• 1											45.3			And the second s						1	
	JANCARY	55.4							4													39.6								Commence of the commence of th		
	DELEMBE	35.4						5.6															-									
	ADVENCER	19.3				_					- 0.1								-									ı		to the same of the same of		
	OC. TOBER	0.8	o	0	0	0	Ö	0	0	0	0	0	Ö	o	0	o	0	0	0	o	0	0.3		1	and the same of the same of	1				Commission of the Commission o		
The second secon	W26432	1920-21	22	23	42	1924-25	98	27	28	29	1929-30	31	32	33	34	1934-35	36	37	38	39	1939-40	41								the second second second second		

TABLE I-9

FIXED RELEASES FROM MARYSVILLE RESERVOIR 1/(in 1,000 acre-feet)

:		Other present	: Browns Valley	: Allowance :	
Month :	Cordua- :	downstream	: Irrigation	: for downstream :	Total
: ]	Hallwood:	rights	: District	:percolation losses:	
January	0	0	0	5.0	5.0
February	0	0	0	5.0	5.0
March	1.3	0	0	5.0	6.3
April	9.4	0.2	1.2	5.0	15.8
May	21.5	0.6	2.4	5.0	29.5
June	24.2	0.6	2.4	5.0	32.2
July	25.5	0.7	2.5	5.0	33.7
August	24.2	0.6	2.4	5.0	32.2
September	17.5	0.5	2.4	5.0	25.4
October	10.7	0.3	1.2	5.0	17.2
November	0	0	0	5.0	5.0
December	0	0	0	5.0	5.0
TOTA	L 134.3	3.5	14.5	60.0	212.3

1/ Not subject to reduction in dry years

TABLE I-10

# RELEASES FROM MARYSVILLE RESERVOIR TO NORTH AUD SOUTH CANALS OF YUBA COUNTY WATER AGENCY 1921-1940 (in 1,000 acre-feet)

	:All yea	rs::		Years of	short s	upply in	the amoun	its shown,	from
	:except		ECO'S						', March 1963
	: shown		1924	: 1929	: 1930	: 1931	: 1933	: 1934	: 1939
Tanziowi		0							
January		0							
Februar	J.	_							
March	3.	(							
April	13.					1.8	1		7.7
May	5h.	9	11.0	3.9	5.,	1.0	3.4	1.7	11.0
June	69.	5	24.9	6.9	5.9	13.0	0	1.1.0	23.9
July	84.	7	2.3	1.5	5.9	1.7	3.6	13.9	6.0
August	73.	2	9.9	7.4	7.4	9.9	7.4	2.5	11.6
Septemb	er 51.	2	3.7	5.1	5	3.8	5.3	7.5.4	8.8
October	ll.	ng mbm			1 . 1		0.3	7.5	
Hovembe	70	0							
Decembe	22	0							
TO	TAL 366.	0	51.8	25.4	32.9	4.2.1	_9.5	52.1	54.3

TABLE I-11

ANTUAL BASIN RUNOFF AND DRY YEAR REDUCTIONS IN FISH RELEASES

Water year	: Basin runoff above Smartville : in percent of normal	: Percent reduction in : fish release 1/
1920-21 -22 -23 -21 <sub>4</sub> -25	132 129 90 31 91	- - 30 -
1925-26 -27 -28 -29 -30	67 150 105 147 79	- - 15 -
1930-31 -32 -33 -34 -35	31 93 51 46 99	30 - - 15 -
1935-36 -37 -38 -39 -40	114 81 165 1:1 123	- - - 20
1940-41	134	-

<sup>1/</sup> In no event shall releases be reduced to less than 70 second-feet.

#### TABLE I-12 (1 of 7)

## ILLUSTRATIVE OPERATION STUDY OF MARYSVILLE RESERVOIR AS A UNIT OF THE STATE WATER PROJECT

Month and year	1995 impaired inflow from Table I-1	Gross storage on first of month	Flood control reser- vation require- ment	Evapo- ration	Manda- tory release for local uses and fish 1/	Flow approp- riated by down- stream users 2/	Addi- tional fishery main- tenance release	1995 surplus flows in the Delta	Export release to Delta	Flood control releases or spill
	(1)	(2)	3	(4)	5	6	7	8	9)	(10)
Jan										
Feb										
Mar		<del></del> -								-
Apr May O Jun O Jul O	162.2	1,000.0		8.9	122,1	40.1	11.1		50.0	
Aug -	110.0	930.0		7.5	109.7	0.3	0		50.0	
Sep	81.8	872.5		5.1_	80.8	1.0	0		35.0	
Oct	56.3	832.4	90	3.0	52.9	3.4	0			
Hov	32.9	829.4	160	-1,0	28.8	4.1	0			
Dec	57.2	830.4	160	-3.0	29.6		0			53.4
Total	(500.4)			(20.5)	(423.9)	(48.9)	(11.1)		(135.0)	(53.4)
	1 17 11									
Jan	71.9	780.0	220	-1.5	20.1		9.5	1,311		63.8
Feb	184.0	760.0	240	0	18.6		8.6	3,771		176.8
Mar	295.1	740.0	260	0	25.1		.3	2,039		269.7
Anr	265.6	740.0	260	1.8	48.7	-	.3_	1,284		54.8
May N	691.9	900.0	100	4.2	99.5		.3	2,079		487.9
Jun (V	545.6	1,000.0	100	7.2	116.3		.3_	1,031		421.8
Jul o	207.1	1,000.0		8.9	122.1	85.0	11.1		50.0	
Aug	121.0	930.0		7.5	109.7	11.3	0		50.0	
Sep	82.1	872.5		5.1	80.8	1.3	0		35.0	
Oct	57.4	832.4		3.0	52.9	4.5	0			
Nov	39.3	829.4	160	-1.0	28.8		0	85		0.9
Dec	130.2	840.0	160	-3.0	29.6		0	1.606		203.6
Total	2,691.2			32.2	752.2	102.1	30.4		135.0	1,679.3
							L			
Jan	157.9	740.0	260	-1.4	20.1		9.5	1,848		129.7
Feb	122.3	740.0	260	0	18.6		8.6	984		
Mar	156.7	835,1		0	25.1		.3	534		126.4
Apr		840.0		2.0	48.7		.3	1,191		
May m	257.4	989.1		4.4	99.5		.3	410		142.3
Jun (V	134.9	1,000.0		7.2	116.3	18.6	-3_		20.0	
Jul o	170.3	972.5		8.7	122.1	48.2	11,1		50.0	
Aug -	115.9	902.7		7.3	109.7	6,2	0		50,0	
Sep_	84.0	845.4		5.0	80.8	3.2	0		35.0	
Oct	67.7	805.4		3.0	52.9	14.8	0			
Nov	36.3	802.4	160	-1.0	28.8	7.5	0			
Dec	40.4	803.4		-3.0	29.6		0	1,410		
Total	1,543.9			32.2	752.2	98.5	30.4		155.0	398.4

#### TABLE I-12 (2 of 7)

### ILLUSTRATIVE OPERATION STUDY OF MARYSVILLE RESERVOIR AS A UNIT OF THE STATE WATER PROJECT

Month and year	1995 impaired inflow from Table I-1	Gross storage on first of month	Flood control reser- vation require- ment	Evapo- ration	Manda- tory release for local uses and fish 1/	Flow appropriated by downstream users	Addi- tional fishery main- tenance release 3/	flows in the	Export release to Delta	Flood control releases or spill
	1	2	3	(4)	5	6	7	8	(9)	10)
Jan	50.8	817.2	160	-1.5	20,1		9.5	90		
Feb	75.1	839.9	160	0	18.6		8.6	540		47.8
Mar	40.2	840.0	160	0	25.1	15.1	.3			
Apr	59.0	839.7	160	2.0	25.1 48.7	10.3	.3			
May J	84.5	837.4	90	4.0	84.0	0,5	.2		40.0	
Jun ∾	97.0	793.2		6.3	87.0	10.0	,2		50.0	
Jul o		736.7		7.4	118.3	0	7.8		50.0	
Aug _	98.8	671.5		6.2	98.8	0	0		50.0	
Sep	<b>7</b> 6.7	615.3		4,2	76.7	0	0		40.0	
Oct	73.7	571.1	90	2.4	45.5	28.2	0			
Nov	43.4	568.7	160	-0.8	21.7	21.7	0			
Dec	37.7	569.5	170	-2.4	22.0	15.5	0			
Total	855.2			27.8	666.7	101.3	26.9		230.0	47.8
<u>Jan</u>	74.2	571.9	180	-1.3	15.6	58.6	6.6			
Feb	244.6		190_	0	14.5		6.0	4,579		30.7
Mar	80.1	760.0	240	0	20.6		.2	722		59.3
Apr	114.8	760.0	240	1.9	44.3		.2	693		
- id.y	161.9	828.4	90	4.0	99.5		.3	366		
0	119.6	886.5		6.7	116.3	3.3	-3		20.0	
Jul o	121.5	859.5		8.1	121.5	0	11.0		50.0	
Aug H	110.9	790.4		6.8	109.7	1.2	0		50.0	
Sep	82.8	733.6		4.6	80.8	2.0	00		35.0	
Oct	57.6	694.0	90	2.7	52.9	4.7	0			
Nov	36.2	691.3	160	-0.9	28.8	7.4	0			
Dec	40.2	692.2	160	-2.7	29.6	10.6	0			
Total	1,244.4			29.9	734.1	87.8	24.6		155.0	90.0
Jan	58.8	(0) 0	3.60	7 1.	00.1	20 7	0.5			
Feb	164.6	694.9	160 160	-1.4	20.1	38.7	9.5 8.6	2 200		64.2
	157.5	760.0	240	0				3,398		
Mar	13(.5			0	25.1		.3	370		72.1
Apr May	232.5	820.0 910.0	180	1.9	48.7	22.0	.3	539_	40.0	91.6
Jun 0	7000		90	14.2	99.5	23.9	.3			
Jul o	117.0	865.5		6.6	116.3	0.7	.3		50.0	
	121.2			7.8	121.2	0	11.1		50.0	
Aug H	109.7	739.7		6.5	109.7	0	0		50.0	
Sep	81.6			4.5	80.8	0.8	0		10.0	
Oct	57.2	638.7	90	2.6	52.9	14.3	0	500		
Nov	107.4	636.1	160	-0.8	28.8		0	508 282		
Dec	59.8	715.5	260	-2.7	29.6	40		202		
Total	1,390.7			29.2	751.3	68.4	30.4		230.0	227.9

#### TABLE I-12 (3 of 7)

## ILLUSTRATIVE OPERATION STUDY OF MARYSVILLE RESERVOIR AS A UNIT OF THE STATE WATER PROJECT

Month and year	1995 impaired inflow from Table I-l	Gross storage on first of month	Flood control reser- vation require- ment	Evapo- ration	Manda- tory release for local uses and fish 1	Flow appropriated by downstream users	Addi- tional fishery main- tenance release 3/	1995 surplus flows in the Delta	Export release to Delta	Flood control releases or spill
	1	2	3	14	5	6	7	8	(9)	10
Jan Feb	96.3 687.9	748.4 816.6	250 160	-1.5 0	20.1	76.2	9.5 8.6	957 7,876		737.3
Mar Apr May	377.1 343.1 391.6	740.0 740.0 910.0	260 260 90	0 1.8 4.2	25.1 48.7 99.5		.3	2,588 2,208 886		351.7 122.3 197.6
Jun () Jul ()	282.9 172.0	1,000,0 972.5		7,2 8,7	116.3	166.6	11.1		20,0	
Aug Sep	111.3 82.3 55.7	902.7 845.4 805.4	90	7.3 5.0 2.9	109.7 80.8 52.9	1.6 1.5 2.8	0 0		50.0 35.0	
Nov Dec	50.1	802.5 820.0	160 180	-1.0 -2.9	28.8		0	28 <u>1</u> 498		35.4
Total	2,692.4	<u></u>		31.7	752.2	298.6	30.4	<u> </u>	155.0	1,449.1
Jan Feb	67.7	800.0 839.6	200 160	-1.5 0	20.1		9.5 8.6	1,166 1,972		75.9
Mar Apr	875.3 272.2	840.0 740.0	160 260	0	25.1 48.7	107.0	•3	5,682 1,448		9 <sup>1</sup> <sub>1</sub> 9.9
Jun N Jul O	207.4 117.8 122.0	860.0 855.5 828.3	140	4.2 6.9 7.9	99.5 116.3 122.0	107.9 1.5 0	•3 •3 11.1		20.0	
Aug d	109.9	579·3 702.7		6.6 4.5	109.7	0.8	0		50.0	
Oct Nov Dec	56.1 35.6 47.8	698.2 695.5 696.4	90 160 160	2.7 -0.9 -2.7	52.9 28.8 29.6	3.2 6.8 18.2	0 0			
Total	2,096.9	9,00	100	29.5	752.1	138.6	30.4		120.0	1,127.2
Jan	48.5	699.1	160	-1.4	20.1	28.4	9.5			
Feb Mar	64.5	691.0	160 160	0	18.6		8.6	318 232		
Apr May Jun	77.3	777.2	160 90	3.8	48.7 91.7	28.6	3		40.0	
Jul o	112.1	730.9 674.6 608.1		6.0 7.1 5.9	107.2 120.6 102.3	4.9 0.5 0.4	9.4		50.0	
Sep Oct	76.4 56.1	552.2 548.3	90	3.9	75.7	0.7 6.9	0			
Nov Dec	30.0	545.9 546.7	160 160	-0.8 -2.3	25.2	69.0	0			
Total	956.3			26.5	710.3	150.9	28.7		190.0	0

#### TABLE I-12 (4 of 7)

## ILLUSTRATIVE OPERATION STUDY OF MARYSVILLE RESERVOIR AS A UNIT OF THE STATE WATER PROJECT

Month and year	1995 impaired inflow from Table I-1	Gross storage on first of month	Flood control reser- vation require- ment	Evapo- ration	Manda- tory release for local uses and fish l	Flow appropriated by downstream users	Addi- tional fishery main- tenance release 3/	1995 surplus flows in the Delta	Export release to Delta	Flood control releases or spill
	1	2	3	4	5	6	7	8	9)	10
Jan	88.8	549.0	230	-1.2	17.8		8.1	856		
Feb	89.7	613.1	260	0	16.6		7.3	124		
Mar	155.3	678.9	210	00	22.8		.3	1,049		
Apr	161.1	811.1	170	1.9	46.5	114.6	3			
May O	117.3	808.9	90	3.9	94.0	_23.3	.3			
Jun M	111.2	804.7		6.4	109.4	1.8	.3		20.0	
Jul o	115.5	778.0		7.7	115.2	0.3	11.1		50.0	
Aug -	103.3	709.2		6.4	102.3	1,0	0		50.0	
Sep	76.2	652.8		4.3	75.7	0.5	0		35.0	
Oct	55.7	613.5	90	2.5	51.8	3.9	0			
Nov	36.9	611.0	160	-0.8	28,8	8.1	0			
Dec	32.0	611.8	160	-2.5	29.6	2.4	0			
Total	1,143.0			28.6	710.5	155.9	27.7		155.0	0
	,				7			<del> </del>		-
Jan	58.0	614.3	160	-1.3	20.1		9.5	263		
Feb	53.4	644.0	160	0	18.6	34.8	8.6	ļ		
Mar	78.4	635.4	170	00	25.1	_53.3	.3			
Apr H	53.0	635.1	160	1.7	46.9	6.1	3			
1.304	85.5	633.1	90	3.4	84.0	1.5	.2		40.0	
Jun M	98.0	589.5		5.3	98.0	0	.2		50.0	
Jul o	.118.7	534.0	-	6.2	118.7	0	7.8		50.0	
Aug -	98.8	470.0		5.1	98.8	0			50.0	
Sep	76.7	414.9		3.4	76.7	0	00	-	10.0	
Oct	73.2	401.5	90	2.0	45.5	27.7				
Nov	44.2	399.5	160	-0.7	21.7	22.5	0			
Dec	55.9	400.2	170	-2.0	22.2		0	457		
Total	893.8			23.1	676.3	145.9	26.9		200.0	0
T		1						0-1		I
Jan Feb	91.5	1135.9	260	-1.1	15.6		6.6	804		
	101.7	506.3	260	0	14.5		6.0	812		
Mar	134-3	587.5	190	0	20.6	113.7	.2			
Apr N	105.6	587.3	160	1.6	44.3	61.3	.2_	-		
Jun m	157.2	585.2	90	3.3	99.5	57.7	3		00.0	
Jul O	171.4	581.9		5.3	116.3	55.1	37.3		20.0	
		556.3		6.3	122.1	38.1	11.1		50.0	
Aug -	111.7	488.9		5.2	109.7	2.0	0		50.0	
Sep Oct	81.8	433.7	00	3.4	80.8	1.0	0		25.0	
	56.6	405.3	90	2.0	52.9	3.7	0			
Nov	30.1	403.3	160	-0.6	28.8	1.3	0			
Dec	31.8	403.9	160	-2.0	29.6	2.2	0			
Total	1,233.9			23.4	734.7	336.1	24.7		145.0	0

#### TABLE I-12 (5 of 7)

### ILLUSTRATIVE OPERATION STUDY OF MARYSVILLE RESERVOIR AS A UNIT OF THE STATE WATER PROJECT

	1995	Gross storage	Flood control		Manda- tory release for	Flow approp- riated	Addi- tional	1995		Flood
Month	impaired inflow	on first	reser- vation		local	by down-	fishery main-	surplus	Export release	control releases
and	from	of	require-	Evapo-	and	stream	tenance	in the	to	or
year	Table I-1	month	ment	ration	fish	users	release	Delta	Delta	spill
5					1/	2/	3/	4/		
					_			~		
	1	(2)	3	14	(5)	6	7	(8)	9)	(10)
Jan	44.0	405.9	160	-1.0	20.1		9.5	493		
Feb	44.4	421.3	210	0	18.6		9.5 8.6	75		
Mar	86.0	438.5	190	0	25.1	60.9	.3			
Apr	81.1	438.2	160	1.4	48.7	32.4	.3			
May ~	103.4	436.5	90	2.7	96.1	7.3	•3		40.0	
Jun ∩	124.6	393.5		4.1	116.3	8.3	3		50,0	
Jul o	118.7	339.1		4.6	118.5	0.2	11.1		20.0	
Aug	102.7	303.4		4.0	102.3	0.4	0			1
Sep	76.1	299.4		2.8	75.7	0.4	0			-
Oct	55.3	296.6	90	1.6	52.6	2.7	0	-		-
Ilov	30.9	295.0	160	-0.5	28.8	2.1	0			
Dec	49.1	295.5	160	-1.7	29.6	19.5	0			
Total	916.3		Ì	18.0	732.4	134.2	30.4	1	110.0	0
				- 0		T		(2.2	1	1
Jan	76.9	297.2	170	-0.8	20.1		9.5	619		
Feb	81.2	345.3	210	0	18.6	62.6	8.6	-		-
Mar Apr	82.6	336.7 336.4	180	0	25.1	57.5	.3		·	ļ
May =	53.3 86.9			1.2	47.0	6.3	3	-	40.0	<b></b>
Jun M	99.9	334.9	90	2.3 3.5		0.7	.3		50.0	<del> </del>
Jul o	116.0	292.3 238.5		3.9	99.9	0	9.4		20.0	
2	95.5	205.2		3.2	95.5	0	0		20.0	
Sep -	72.7	202.0		2.2	72.7	0	0			
Oct	66.9	199.8	90	1.3	49.2	17.7	0			
1.ov	41.2	198.5	160	-0.5	25.2	16.0	0			
Dec	28.9	199.0	180	-1.3	25.9	3.0	0			
Total	902.0			15.0	681.4	163.8	28.7		110.0	0
							1			
Jan .	91.4	200.3	200	-0.7	17.8		8.1	1,126		
Feb	90.8	266.5	220	0	16.6	74.2	7.3	0		
Mar	94.8	259.2	220	0	22.8		.3	1,151		
Apr	231.0	330.9	190	1.2	46.5		.3	2,196		
May	340.0	513.9	140	3.0	99.5		-3	531		
oun	215.8	751.1	10	6.1	116.3	99.5	.3		20.0	-
Jul O	154.2	724.7	-	7.4	122.1	32.1	11.1		50.0	
Aug H	110.4	656.2		5.7	109.7	0.7	0		50.0	-
Sep	82.6	600.5		4.1	80.8	1.8	0			ļ
_Oct	55,8	596.4	90	2.5	52.9	2.9	0			
Nov	30.5	593.9	160	-0.8	28.8	1.7	0			
Dec	33.8	594.7	160	-2.5	29.6	4.2	0			
	1,531.1			26.0	743.4	217.1	27.7		120.0	0

#### TABLE I-12 (6 of 7)

## ILLUSTRATIVE OPERATION STUDY OF MARYSVILLE RESERVOIR AS A UNIT OF THE STATE WATER PROJECT

		Gross	Flood		Manda- tory release	Flow approp-	Addi-			
	1995	storage	control		for	riated	tional	1995		Flood
	impaired	on	reser-		local	by	fishery	surplus	Export	control
Month	inflow from	first	vation	Drono	uses	down-	main-	flows	release	releases
and year	Table I-1	of month	require- ment	Evapo- ration	and fish	stream	tenance	in the	to	or
year	Table 1-1	montin	ment	racion	11511	users	release	Delta	Delta	spill
						2/	<u>3</u> /	14/		
	1	2	3	4	(5)	6	7	8	9)	10
Jan	167.4	597.2	160	-1.3	20.1		9.5 8.6	2,574		
Feb	491.0	736.3_	260	0.	18.6			6,373	-	460.1
Mar	296.1	740.0	260	00	25.1		-3_	2,333		270.7
Apr May o	320.1 304.8	740.0 910.0	260 90	1.8	48.7		•3	534 450		99.3
Jun m	165.8	1,000.0	90	7.2	99.5	49.5	3	450	20.0	110.8
Julo	151.6	972.5		8.7	122.1	29.5	11.1		50.0	
Aug	111.3	902.7		7.3	109.7	1.6	0		50.0	
Sep	81.7	845.4		5.0	80.8	0.9	0		35.0	
Oct	56.1	805.4	90	2.9	52.9	3,2	0		37.0	
Nov	31.4	802.5	160	-1.0	28.8	2.6	0			
Dec	33.4	803.5	160	-2.9	29.6	3,8	0			
Total	2,210.7			31.9	752.2	91.1	30.4		155.0	940.9
									1	
Jan	45.1	806.4	160	-1.5	20.1		9.5	109	-	23.4
Feb	96.8	800.0	200	0	18.6		8.6	2,225		129.6
Mar Apr	130.9 226.7	740.0	260 260	0	25.1		3	3,046		105.5
May N	397.2	890.0	110	μ.1	48.7		•3	745	-	25.9
Jun m	126.8	1,000.0	110	7.2	99.5	10.5	•3	581	20.0	183.3
Jul o	150.1	972.5		8.7	122.1	28.0	11.1		50.0	
Aug -	111.7	902.7		7.3	109.7	2.0	0		50.0	
Sep	82.6	845.4		5.0	80.8	1.8	0		35.0	
Oct	55.4	805.4	90	2.9	52.9	2.5	0			
Nov	43.0	802,5	160	-1.0	28.8		0	704		
Dec	250.4	817.7	180	-2.9	29.6		0	4,279		301.4
Total	1,716.7			31.6	752.2	44.8	30.4		155.0	769.1
-	125.0	771.0	060	- 1				- 1 -0		
Jan Feb	115.0	740.0	260	-1.4	20.1		9.5	1,458		76.8
	357.2 707.6	750.0 740.0	250 260	0	18.6		8.6	8,706		340.0
Mar	429.5	740.0	260	1.8	25.1 48.7		•3	9,451		682.2
Apr May $\infty$	569.4	860.0	140	4.2	99.5		•3	4,540		258.7 325.4
Jun m	364.2	1,000.0	2.0	7.2	116.3		•3	4,229 2,753		240.4
Jul o		1,000.0		8.9	122.1		11.1	71		53,1
Aug	114.9	1,000.0		7.8	109.7	5.2	0		50.0	7.19.3
Sep	82.9	942.2		5.4	80.8	2.1	0		35.0	
Oct	58.3	901.8	90	3.1	52.9		0	56		64.1
Nov	33.7	840.0	160	-1.0	28.8		0	338		5.9
Dec	36.5	840.0	160	-3.0	29.6		0	7147		9.9
Total	3,064.4			33.0	752.2	7.3	30.4		85.0	2,056.5

#### TABLE I-12 (7 of 7)

### ILLUSTRATIVE OPERATION STUDY OF MARYSVILLE RESERVOIR AS A UNIT OF THE STATE WATER PROJECT

										_
Month and year	1995 impaired inflow from Table I-1	Gross storage on first of month	Flood control reser- vation require- ment	Evapo- ration	Manda- tory release for local uses and fish 1/ 5	Flow appropriated by downstream users	Addi- tional fishery main- tenance release 3/	1995 surplus flows in the Delta 4	Export release to Delta	Flood control releases or spill
						0			9)	
Jan	47.1	840.0	160	-1.5	20.1		9.5	668		19.0
Feb	45.6	840.0	160	0	18.6		8.6	876_		28.4
Mar	90.2	830.0	170	0	25.1		-3	884		74.8
Apr	65.9	820.0	180	1.9	48.7	17.2	.3			
May	87.7	817.8	90	3.9	85.5	2.2	.2		40.0	
Jun <sup>∽</sup>	99.3	773.7		6.2	99.3	0	2		50.0	
Jul o	115.7	717.3		7.3	115.7	0	8.9		50.0	
Aug H	95.7	651.1		6.1	95.1	0.6	0		50.0	
Sep	72.4	595.0		4.1	72.0	0.4	0		40.0	
Oct	65.6	550.9	90	2.4	48.0	17.6	0			
Nov	30.8	548.5	160	-0.8	24.0	6.8	0			
Dec	28.2	549.3	160	-2.4	24.7	3.5	0			
Total	844.2			27.2	676.8	48.3	28.0		230.0	122.2
Jan	151.0	551.7	160	-1.6	17.1		7.6	1,459		1
Feb	315.9	679.6	250	0	15.9		6.9	3,999		222.7
Mar	655.8	750.0	250	0	22.1		.2	5,680		573.5
Apr	322.3	810.0	190	1.9	45.8		.2	3,959		174.4
May O	150.5	910.0	90	4.2	99.5		•3	322		
Jun →	194.8	956.5		7.0	116.3	78.5	•3		20.0	
Jul o	122.3	929.2		8.5	122.1	0.2	11.1		50.0	
Aug	111.1	859.6		7.1	109.7	1.4	0		50.0	
Sep	81.6	802.5		4.9	80.8	0.8	0		35.0	
Oct	56.4	762.6	90	2.8	52.9	3.5	0			
liov	36.0	759.8	160	-1.0	28.8	7.2	0			
Dec	102.4	760.8	160	-2.8	29.6		0	3,370		26.4
Total	2,300.1			31.0	740.6	91.6	26.6		155.0	997.0

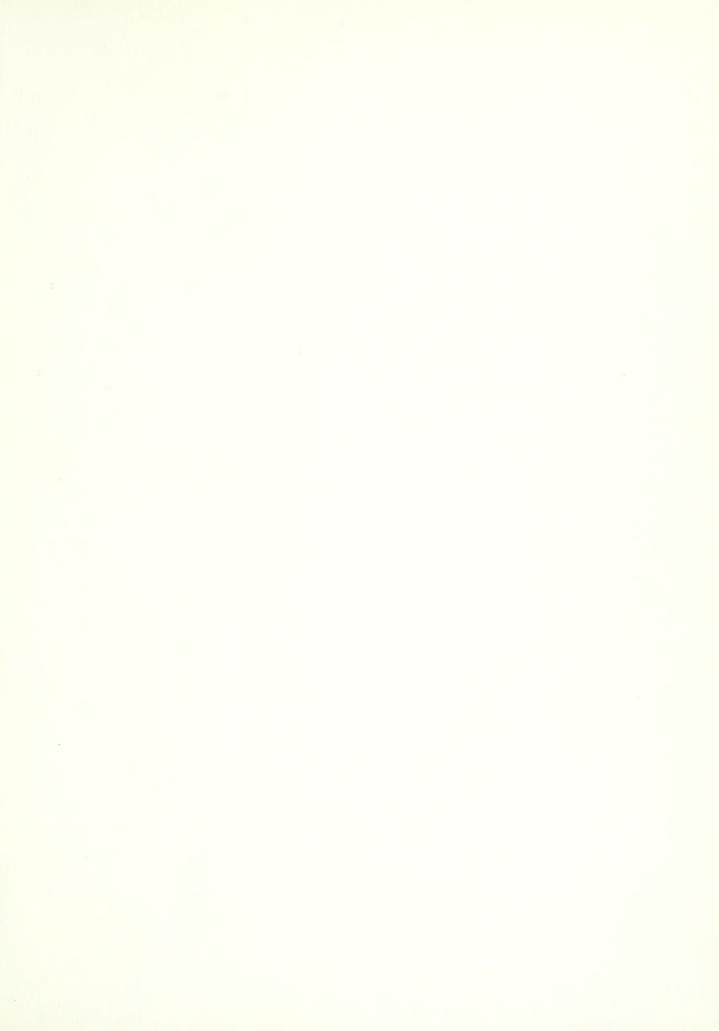
See Tables I-9 and I-10 for mandatory releases. Releases for fishery preservation are based on agreement between Department of Fish and Game and Yuba County Water Agency.

<sup>2/</sup> Yuba River flow in excess of local uses (col. 5) which occurs in months of no Delta surplus. Surplus flows in the Delta (col. 8) reflect ultimate (1995) development in the Yuba River valley floor service area.

<sup>3/</sup> As recommended by Department of Fish and Game in Appendix B of Bulletin No. 115.

<sup>4/</sup> From operation of CVP-SWP under May 16, 1960 agreement and estimated 1995 conditions of consumptive use in the Central Valley.







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